Science
Q
11
.C9
16:2
1911a

LIBRARY OF
WELLESLEY COLLEGE

1875

Preservation photocopied
with funds from the
Barbara Lubin Goldsmith
Library Preservation Fund

Science
Q
11
.C9
16:2
3 -407

TRANSACTIONS OF THE
CONNECTICUT ACADEMY OF ARTS AND SCIENCES
Incorporated A. D. 1799

VOLUME 16, PAGES 383-407 JUNE, 1911

New Spiders from New England

BY

J. H. EMERTON

PUBLISHED UNDER THE AUSPICES OF
YALE UNIVERSITY

NEW HAVEN, CONNECTICUT
1911

TRANSACTIONS OF THE
CONNECTICUT ACADEMY OF ARTS AND SCIENCES
INCORPORATED A. D. 1799

VOLUME 16, PAGES 383-407 JUNE, 1911

New Spiders from New England

BY

J. H. EMERTON

PUBLISHED UNDER THE AUSPICES OF
YALE UNIVERSITY

NEW HAVEN, CONNECTICUT
1911

Science Library
Q
11
.C9
16:2
1911a

WEIMAR: PRINTED BY R. WAGNER SOHN.

NEW SPIDERS FROM NEW ENGLAND

BY J. H. EMERTON.

This paper describes 25 new species and 15 described species of spiders found in New England since the completion of the Supplement to the New England Spiders published in the Transactions of the Conn. Acad., Vol. 14, January, 1909. Two of these are European species apparently lately introduced: Teutana grossa, found in a museum basement in company with T. triangulosa and Epeira diademata, found at Newport, R. I., and evidently well established around the house of the Historical Society and for several blocks along the adjoining street. The two European species of Zilla are now abundant: Z. x-notata all over Cape Cod and the South shore of Massachusetts and Rhode Island and Z. atrica on Cape Ann and the adjoining country as far south as Fall River and Newport, but not far inland. Zora spinimana, a European spider, has been found several times in one locality only, but in a situation where there seems little probability of its being introduced. Four species first described from the Canadian Rocky Mountains have now been found in Northern New England. Of these Linyphia humilis is abundant among the dwarf firs and spruces at a height of 2000 to 4000 ft. on Greylock, Mass., Mt. Mansfield and Camel's Hump, Vt., Mt. Washington, N. H., and at the sea level in eastern Maine at Eastport. Pedanostethus fuscus described first from the Rocky Mountains under the name of Steatoda occurs at several places at about 2000 ft. elevation around Mt. Washington. The other two species are Lycosa quinaria and L. beanii found at Bangor and on Mt. Desert, Me. Of the native species, two were formerly included in others to which they are nearly related, Ceratinella carinata in C. laetabilis and Pisaura brevipes in P. (Ocyale) undata. The two species formerly included in *Phrurolithus alarius* have been separated and the larger one named *P. borealis*. The systematic relations of several species are doubtful, especially Tmeticus armatus Bks. which has pits in the sides of the head like Lophocarenum and male palpi like Erigone or Gongylidium with long setæ at the base of the tarsus as in Tmeticus longisetosus and flaveolus. Histagonia nasutus resembles H. (exechophysis) palustris Bks. but has the peculiar character of the head exaggerated. Another species of special interest is Microneta olivacea. The male was described from Mt. Washington in 1882, the female was found by Britcher on Mt. Katahdin in 1901; but the relation between the two was not noticed until the discovery of both sexes in several localities in 1910. The female has a peculiar projection of the front of the head and thickened palpi resembling those of an undeveloped male and an epigynum of the Microneta type of unusual size corresponding to the large palpi of the male.

List of New Species.

Ceratinella sphaerica.
„ *carinata.*
Araeoncus bispinosus.
Dicymbium pectinatum.
Histagonia nasutus.
Lophocarenum excavatum.
„ *arenarium.*
„ *domiciliorum.*
„ *flagellatum.*
Tmeticus aestivalis.
„ *tarsalis.*
„ *entomologicus.*
„ *tenuipalpis.*
Bathyphantes intricata.
„ *theridiformis.*
Diplostyla brevis.
Dictyna terrestris.
Argenna obesa.
Pisaura brevipes.
Pardosa muscicola.
Liocranum calcaratum.
Micaria longispina.
Phrurolithus borealis.
Prosthesima transversa.
Sittacus striatus.

Described species lately found in New England.

Teutana grossa K.
Pedanostethus fusca Em.
Lophocarenum bilobatum Bks.
„ *exiguum Bks.*
Tmeticus armatus Bks.
Grammonota trivittata Bks.
Linyphia humilis Em.
Epeira diademata Cl.
Lathys foxii Marx.
Lycosa quinaria Em.
Lycosa beanii Em.
Phrurolithus minutus Bks.
„ *formica Bks.*
Zora spinimana Snd.
Dendryphantes castaneus Hentz.

Theridion globosum, Hentz.

The male of this species is 2 mm. long with the first leg 5 mm. long. The head extends forward a little more than in the female and the front middle eyes are as far from the upper middle pair as they are from each other. The abdomen is round and not as much elevated as in the female; it has a black spot on the hinder half, but the light area around it is not as distinct as in the female. There is a black spot in the middle of the under side of the abdomen. Pl. I, fig. 1.

The male palpus has the tarsus prolonged into a slightly curved horn, and opposite this on the outer side of the palpus the bulb extends into a sharp point curved like the horn, but half as large. Figs. 1a, 1b.

Fitzwilliam, N. H., with female, July 21, 1907. Blue Hills, Milton, Mass., Miss Bryant, June 25, 1904. Cold Spring Harbor, Long Island, N. Y., July 4, 1907.

Teutana grossa, Koch.

Female 8 mm. long, cephalothorax 3 mm. The cephalothorax is shaped as in *triangulosa*, but the sternum is heartshaped and does not extend backward between the fourth coxæ. The cephalothorax and legs are dull yellow without any markings. The abdomen is purplish brown with lighter markings forming a half circle near the anterior end and a middle row of triangles. Pl. I, fig. 2. On the under side the abdomen is of the same color with fine oblique lighter lines at the sides. The epigynum has a dark semicircle across it in front, much as in *triangulosa*. Fig. 2a.

One female in company with *triangulosa* in cellar of the building of the Boston Soc. Nat. Hist. A European species probably introduced.

Pedanostethus fuscus.

Steatoda fusca, Em. Canadian Spiders, Trans. Conn. Acad., 1894.

This species has now been found in the White Mountains in the Carter Notch, Crawford Notch and the Great Gulf of Mt. Washington. It resembles *P. pumilus* but is one-half larger. In size and color it is like *Tmeticus brunneus* with which it lives. The epigynum is without any anterior hard appendage. See Trans. Conn. Acad. 1894. The palpus has the tarsus shaped as in *pumilus*. At the base of the palpal organ on the inner side the process is longer and sharper at both ends than in *pumilus*. Figures are given of this process in the four species of Pedanostethus. Pl. I, figs. 3, 3a, 3b, 3c.

Ceratinella sphaerica, new.

Males 1 mm. long. Cephalothorax as wide as long and two-thirds as high in front as it is wide. Abdomen round, as wide as long and nearly as high, extending forward over the cephalothorax half its length. Hard covering of the abdomen extending underneath as far as the pedicel and the spinnerets, and covered as in other species with minute pits and hairs. Pl. I, figs. 4, 4a. The color is dull, the cephalothorax and abdomen nearly black, and the legs yellowish gray. The sternum is wider than it is long and between the fourth coxæ as wide as it is in front. The male palpi are as long as the cephalothorax. The patella and tibia are of the same length and the tibia but little widened at the front. The outer process is slightly curved outward and downward. Fig. 4c. The palpal organ is of the usual structure in the genus, with all the parts of moderate size and length. Fig. 4b.

Two males under leaves in moist woods, Tyngsboro, Mass.

Ceratinella carinata, new.

Like *C. laetabilis* except in the palpi of the male. The palpi have the tibia narrower than in *laetabilis*, not more than twice as wide as long and the wide black tooth is a fourth smaller. The tarsus has on the outer edge three dark ridges that from some directions look like spines and between the two outer ridges are a few minute hairs. The whole tarsus is slightly smaller than in *laetabilis*. All the males found in a bog at Springfield, Mass., and near the Wayside Inn in Sudbury are of this species. In Concord, Mass., this and *laetabilis* were found together. The tarsus of the male palpus of *C. laeta* has ridges on the outer edge similar to those in *carinata*. Pl. I, figs. 5, 5a, 5b, 5c, show the tarsus and tibia of males of this species compared with *laetabilis*, *laeta* and *brunnea*.

Grammonota trivittata, Bks. Journ. N. Y. Ent. Soc., 1895.

2 mm. to 2.5 mm. long, more slender than *G. ornata* and with longer legs. The palpi of the male are as long as the cephalothorax, while in *ornata* they are shorter. The color is generally lighter than in *ornata*, the head is lighter than the thorax, while in

ornata the head is darkest. Pl. I, figs. 6, 6a. The light spots of the abdomen are united more closely than in *ornata*, and form two serrated longitudinal stripes. The male palpus has the patella and tibia both longer than they are wide, and the whole palpus longer than in *ornata*. The palpal organ resembles that of *ornata*, but is slightly smaller. Figs. 6b, 6c.

Salt marshes from Gloucester, Mass. to Long Island N. Y.

Grammonota gigas, Em. Trans. Conn. Acad., 1909.
Erigonoplus gigas, Bks. Canadian Entomologist, 1896.

Plum Island, Mass., June 17, 1910, under straw on growing grass at edge of salt marsh. The markings of the abdomen are more uniform than in *ornata*, the front light spots not much larger than the others. The female has the head slightly raised behind the eyes. The epigynum has the middle depression square instead of narrowed in front as it is in *ornata*.

Araeoncus bispinosus, new.

Male 1.5 mm. long. Cephalothorax as wide as long and a little narrowed in front. The top of the head is elevated abruptly with shallow grooves, but without any holes at the sides. Pl. I, fig. 7. The sternum is convex and as wide as long. Fig. 7c. The upper middle eyes are farther from the front middle eyes than from each other and are farther back than the posterior lateral eyes. The male palpi have the patella more than twice as long as wide. The tibia is short and widened on the inner side where it has a long, fine spine, slightly curved and extending over the back of the tarsus. Near the base of the spine is a shorter one sharp-pointed and curved inward. Fig. 7a.

Two males only, Springfield, Mass., Sept. 20, 1909.

Dicymbium pectinatum, new.

Male 1.5 mm. long, dull gray, with lighter yellowish legs. The cephalothorax is high in front with the head highest just behind the eyes, Pl. I, fig. 8, but without any holes at the side of the head. The upper middle eyes are very little larger than the front middle eyes. The first legs are a little thicker than the others, and the first metatarsus has on the upper side a single row of seven large hairs. Figs. 8, 8a. The male palpi are as long as the cephalothorax. The patella is long, nearly as long as the femur. The tibia is short and wide and hollow on the under side, in the middle of which the tarsus is attached. Fig. 8d. The end of the tibia is obliquely truncated and the outer corner has a small recurved point. Fig. 8c. The tarsus is round and the palpal organ small and simple. The palpus resembles that of *Dicymbium gracilipes* of Europe.

One male only under leaves at Three Mile Island, Lake Winnipesaukee, Oct. 10, 1909.

Histagonia nasutus, new.

Male 2 mm. long. The front of the head extends forward beyond the mandibles and upward as high as the front eyes, covered on the highest part with short hairs directed upward and backward. The head is elevated and the eyes all turned upward. Pl. I, figs. 9, 9a. Seen from above the cephalothorax appears pointed in front as in *H. palustris.* The abdomen is oval and the whole body dull gray without markings. The male palpi resemble those of *H. palustris* but the tibia is more simple and the parts shorter and less pointed without the distinct wedge-shape when seen from above in *palustris.* The palpal organ is much as in *palustris* with the tube shorter and the support longer and more pointed.

One male only with *palustris* in dust and leaves washed up on the shore at Three Mile Island, Lake Winnipesaukee, N. H.

Lophocarenum bilobatum.

Dicyphus bilobatus, Banks. Canadian Entomologist, 1896.

In size and color this resembles *L. decemoculatum.* The cephalothorax and legs are bright orange and the abdomen bluish black. The cephalothorax is nearly as wide as long, rounded in front and without the projection over the mandibles which is so distinct in *decemoculatum.* The hump is divided into two distinct lobes, each oval, and about twice as long as wide. Pl. II, fig. 1. The holes in the head are close behind and a little higher than the upper lateral eyes, fig. 1a, appearing from in front like an additional pair of eyes as in *decemoculatum.* Behind the two lobes and around their outer sides the cephalothorax is slightly elevated. The male palpi are more slender and the palpal organs smaller than in *decemoculatum.* The tibia has on the upper and inner side a slender, slightly curved hook, extending along the edge of the tarsus more than half its length. Fig. 1. The palpal organ is simple, the tube and a soft conductor arranged as in *decemoculatum* and *florens,* but smaller and more slender. Fig. 1b.

So. Framingham, Mass., from low plants on the edge of a flooded meadow, May 15, 1910.

Lophocarenum exiguum, Bks. Proc. Phil. Acad., 1892.

Length of male 1.5 mm. Legs pale, but the rest of the body dark; the cephalothorax yellow brown and the abdomen gray. The sternum is dark brown but the coxæ as well as the rest of the legs are pale. The head of the male is high and has a narrow vertical hump with the upper middle eyes on top of it. Pl. II, fig. 2, 2a. There are grooves in the head extending forward over the upper lateral eyes so that the edge can be seen from in front. Fig. 2a, 2c. The female has no trace of the hump. The male palpus has the patella short and the tibia flattened and divided into two branches, the upper branch flat and turned nearly vertical, and the lower branch curved in a flat hook over the back of the tarsus. Figs. 2a, 2b. The upper branch of the tibia is irregularly toothed with a large tooth at the upper and one at the lower corner. Fig. 2b.

Woodbridge, near New Haven, Conn. Miss E. B. Bryant in Mus. Comp. Zool. Found by Banks at Ithaca, N. Y.

Lophocarenum excavatum, new.

Male and female 2 mm. long. Abdomen punctate all over with short scattered hairs in the depressions. In the male there is a thickened shield covering the dorsal half of the abdomen as in Ceratinella. Pl. II, fig. 3. The abdomen and cephalothorax are chestnut brown, except the top of the hump on the head of the male, which is pale like the legs and palpi. In the male the head is divided into two parts by a notch in front and the upper half forms a rounded hump carrying in front the upper middle eyes. Figs. 3, 3a. On each side of this hump is a deep oval depression. In the female the middle eyes are far apart but there is no trace of the hump. The male palpus has the patella long and the tibia short, with a long process on the upper side ending in a small hook. Figs. 3, 3b. The tarsal hook and the parts of the palpal organ are all small. Fig. 3b. The epigynum is flat and simple in form. Fig. 3c.

Ipswich, Aug. 18, 1908, under straw on the edge of the salt marsh.

Lophocarenum arenarium, new.

Head slightly raised as in *simplex* and *erigonoides*. The pits are only a little farther back than the upper middle eyes, and are small and not easily seen. The lower middle eyes are higher than the lower lateral pair. The face below the eyes extends forward and is covered with short, stiff, black hairs directed upward. Pl. II, Figs. 4, 4a. The first and second legs have similar short, stiff hairs on the under side. On the femur the hairs are clustered at the base and are smaller and in two rows toward the tip. On the tibia they are longer and in eight or ten pairs, and on the metatarsus and tarsus they are finer and more like ordinary hairs. The first and second legs are slightly thicker than the others. The cephalothorax is as wide as it is long. The sternum is as wide as long, and extends between the fourth legs where it is as wide as one of the coxæ. The male palpi are short with the patella about twice as long as wide and widened at the end. The tibia is not widened laterally but extends upward over the tarsus, ending in a slightly curved tip on which is a small incurved point. Figs. 4, 4b. The tarsal hook is simple in form, and its base follows the curve of the tibia. The tube of the palpal organ is long and slender, and makes one turn around the end of the bulb, supported at the end by a thin appendage half its own length. Fig. 4b.

The female is the same size and color as the male and has the head a little elevated, but no unusual arrangement of hairs on the head or front legs. The epigynum is short and wide, showing through the skin round receptacles more than twice their diameter apart. Fig. 4c.

One male, Ipswich, Mass., May 12, 1908 under straw at Lakeman's Beach. Males and females on salt marsh at Oak Island, Lynn, Mass.

Lophocarenum domiciliorum, new.

From cellar of Boston Society of Natural History, November, 1910. The head is only slightly elevated behind the eyes. The upper row of eyes, seen from above, is nearly straight. At the sides of the head beginning just behind the upper lateral eyes are deep grooves extending backward half the length of the head, with shallow and pointed pits near the anterior end. Pl. II, figs. 5, 5a.

The male palpus has the patella as long as wide and the tibia a little longer, widened at the anterior end, with a long, sharp point on the inner side. The tarsus is oval and the palpal organ small and simple. Figs. 5b, 5c.

During the autumn flights great numbers of small spiders are blown into Boston and alight on the fences of the common and the streets west of it. This spider probably came into the city in this way.

Lophocarenum flagellatum, new.

Male a little over 1 mm. long. The cephalothorax high in front and highest behind the eyes. At the sides of the hump are grooves with a round pit at the anterior end. The grooves are unusually far behind the eyes and when seen from above resemble those of L. minutum; the head, however, is much higher than in that species. Pl. II, figs. 6, 6b. The male palpi also resemble those of *minutum.* Their patella and tibia are both short but the tibia shortest. The tibia is widened at the end and has a long, slender process extending over the outer side of the tarsus nearly its whole length, and slightly hooked at the tip. Fig. 6.

One male from Seal Harbor, Mt. Desert, Me., July 1, 1909.

Lophocarenum florens and **decemoculatum.**

Several females found with males in the early summer of 1909 show the differences between these two species which in general appearance closely resemble each other. The epigynum of *florens* is already well figured in N. E. Therididæ, Trans. Conn. Acad., 1882. That of *decemoculatum* is shown in a new figure, Pl. II, fig. 7b. The eyes of *florens* are farther apart than those of *decemoculatum* and the upper middle eyes are higher and farther from the front middle pair than they are from each other. In *decemoculatum* the middle eyes nearly form a square, the upper pair being only a little farther apart than the front pair. Figs. 7, 7a.

Lophocarenum (Tmeticus) armatum Bks. Proc. Ent. Soc. of Washington, Feb. 1, 1906.

Male 4 mm. long. Cephalothorax and legs orange yellow, abdomen bluish gray. The head is slightly elevated and there is a shallow groove and a small round hole close behind the lateral eyes. Pl. II, Figs. 8, 8a. The upper middle eyes are farther from the front eyes than from each other. The mandibles are large and with several large spines. In front and showing from above is a large pointed tooth pointing downward. On the inner side of the mandible, near the middle, is a large tooth and nearer the base two others, and there are several small teeth and processes around these larger ones. Figs. 8, 8a, 8b. The maxillæ are wide and project sidewise beyond the sternum. Their front edge has a double tooth at the outer corner. The sternum is widest in front, where it is nearly as wide as long. At the hinder end it has a narrow projection between the fourth coxæ. Fig. 8b. The palpi are long and resemble those of Erigone having a similar tooth directed downward on the patella.

Fig. 8f. The tibia is widened at the end as in Erigone and Gongylidium. At the base of the tarsus are three stiff bristles like those of *Tmeticus longisetosus.* Fig. 8e.

The female is 3 mm. long, colored as in the male, but paler. The eyes have a similar arrangement, but are not elevated above the cephalothorax. The mandibles are large but without unusual processes and have five teeth on the front of the claw groove. The maxillæ are wide and project a little beyond the sternum. The sternum is wide in front, widest between the first and second legs, and projects backward between the fourth coxæ. The epigynum is shown in Fig. 8d.

White Mountains, N. H., near the Crawford Notch, sifted from leaves, Sept. 25, 1908. Banks described it from Manitoba.

Tmeticus aestivalis, new.

1.5 mm. long. Cephalothorax nearly as wide as long and the abdomen narrower and oval. The sternum is as wide in front as it is long, and varies in shape. In some males it is almost triangular, with the sides straight and the widest part just behind the first legs, but usually the sides are slightly curved to the fourth coxæ, where the sternum is very narrow and extends between them. The male palpus has the tibia nearly as wide as long and divided at the front end, the outer branch curving outward. The tarsal hook is large and grooved on the outer side with two teeth at the end, the outer one largest and curved toward the other. At the end of the palpal organ is a black forked appendage bent toward the bulb and pointed forward and outward. Pl. III, figs. 1, 1a, 1b.

The female is as large as the male, with the cephalothorax not quite as wide. The epigynum appears without magnifying as two parallel dark stripes, at the anterior end of which the small round receptacles show through the skin. Fig. 1c.

Mt. Toby and Holden, Mass., in June under leaves.

Tmeticus tarsalis, new.

2 mm. long. Cephalothorax nearly as wide as long, with the whole anterior half elevated. Pl. III, fig. 2. The eyes are slightly raised above the rest of the head and the front of the cephalothorax from the eyes to the mandibles is nearly vertical. The male palpi are as long as the cephalothorax, with the tarsus and palpal organ large and rounded, and a very long tube thick at the base and coiled entirely around the tarsus. Fig. 2a. The tibia is short and small, showing above two short teeth. The tarsal hook

is bent at a sharp angle, as in *T. debilis.* The outer edge of the tarsus which is without hairs and separated from the rest by a sharp ridge has a wide rounded lobe in front of the tarsal hook. Fig. 2 b.

Fall River, Mass., Mt. Mansfield, Vt., Crawford Notch, N. H.

Tmeticus entomologicus, new.

Only 1 mm. long and dull gray. The cephalothorax is one-fourth longer than wide and the head low, and a little narrowed. The front row of eyes is one-fourth shorter than the upper row, the front eyes are close together and the middle eyes only half the diameter of the lateral. The male palpi have the tibia elongated on the upper side and truncate at the end. The tarsal hook is curved in a half circle and simple in form. Pl. III, fig. 3. The tarsus is short and round and the palpal organ large with a short tube and two large processes.

Ipswich, L. R. Reynolds, and Tyngsboro, Mass., F. Blanchard, under leaves in May and June.

Tmeticus tenuipalpis, new.

Males and females 3 mm. long. Abdomen high and round and marked as in *T. probatus* with light spots in pairs. The legs and palpi are long and slender. The general color is dull gray without markings except the spots on the abdomen. The mandibles are very large in both sexes. In the male the mandible has on the front and outer side a row of five stout teeth, smallest toward the head. Pl. III, figs. 4, 4 b. On the under and inner side are two rows of long teeth, four in the outer and five in the inner row, between which the claw is folded. Fig. 4 a. The maxillæ are long and wide, with blunt teeth at the sides, extending beyond the sternum. The trochanter has also a short tooth on the under side. The male palpi are unusually slender and nearly twice as long as the cephalothorax. The tibia is slightly widened at the end with short teeth around it. The tarsus is more than twice as long as wide and the palpal organ occupies only the basal half. The tarsal hook is short and without any prominent points or hooks. Figs. 4 c, 4 d.

The female has the same rows of spines on the mandibles as the male, but all much smaller. The epigynum is very simple. Fig. 4 e.

Ipswich, under straw on the edge of the salt marsh, August 1908 and 1909.

Microneta olivacea, Emerton. N. E. Therididae, Trans. Conn. Acad. 1882.

The male is 2 mm. long, the cephalothorax 1 mm. The cephalothorax is as wide as long and wider than the abdomen. In front it extends forward slightly beyond the eyes and beyond the mandibles. The eye area is a little elevated. Pl. III, fig. 5, 5 b. The mandibles are narrowed at the ends and have one very small tooth near the inner angle. The male palpi are of the microneta type but unusually large. The tarsus is angular and has a small spur at the base. Figs. 5, 5 a. The tarsal hook is wide and flat with a tooth at the end and a wider one at the angle.

The female is as long as the male but has the cephalothorax a fourth longer than wide. Fig. 5 g. The color is lighter than in the male and yellowish brown rather than gray. The cephalothorax extends forward beyond the eyes farther than in the male and projects distinctly beyond the mandibles. Fig. 5 c. The mandibles are slightly curved forward at the ends as they are in the male, but are not much narrowed, and the single tooth is large. Fig. 5f. The palpi have the tarsus thickened in the middle so that it appears like that of an immature male. Figs. 5 d, 5 h. The epigynum is folded and resembles that of other Microneta and Bathyphantes. Figs. 5 i, 5 k.

The female was found by the late H. C. Britcher on Mt. Katahdin, Me., in 1901, and has since been found with males on Greylock and Mt. Mansfield.

Three females found with two males at Norcross, Me. June 30, 1910, resemble those from other places except that the palpi are not swelled at the end. Fig. 5 e. The males agree with those from other places.

Bathyphantes theridiformis, new.

Cephalothorax 1 mm. long. Whole body 2 mm. long in male and 3 mm. in female. Color pale with gray markings resembling *Theridion sexpunctatum.* The cephalothorax has a wide middle dark stripe as wide in front as the eyes and tapering slightly backward. There is a dark line along the sides of the cephalothorax nearly to the eyes. The legs are slightly gray on the ends and middle of each joint. The abdomen has on the back a dark mark over the dorsal vessel and a series of pairs of irregular dark spots more or less united with spots along the sides and with each other.

On the under side the coxæ and mouth parts are pale and the sternum gray. The abdomen is gray, lighter in the middle, and darker along the sides, the markings varying in individuals and sometimes broken into irregular spots.

The male palpi have the tarsus with a small process at the base on the upper side. The tarsal hook is curved outward at the end where it has two points, the distal one much the longer. Fig. 6a. The mandibles of the male are turned apart from the middle, where two of the teeth along their edge are much larger than the others. Fig. 6b.

The epigynum is short and wide, the outer fold in two lateral lobes, with a small middle one. Fig. 6c.

Jackson, N. H., June 1, 1910.

Bathyphantes intricata, new.

3 mm. long and pale, without any markings. Cephalothorax and legs yellowish and the abdomen gray. The legs long and slender, the front pair 8 mm. long. The male palpi have the tibia and patella short and of the usual form, without processes, but the tarsus and its appendages are extremely complicated, as best shown in the figures. The tarsus has a sharp angle on the upper side and a process at the base and both these are elongated into sharp, curved teeth. Pl. III, figs. 7, 7d. The tarsal hook is hard to describe. It has all the curves and angles found in this genus and all exaggerated into teeth and ridges.

Three Mile Island, Oct. 20, 1909.

Diplostyla brevis.

Like *nigrina* in size and color, varying in length from 2 mm. to 3.5 mm. and in color from pale to dark gray, almost black. As in *nigrina* the markings of the back of the abdomen, especially near the front end, may be small gray spots in pairs on a pale ground or they may be pale spots in a general dark gray. On the under side this species is generally lighter than *nigrina*, having two pale stripes sometimes extending the whole length or sometimes only partway backward from the epigynum with the space between the stripes, in some individuals, nearly as pale as the stripes themselves.

The epigynum has the two median finger-like appendages not more than half as long as in *nigrina*. Pl. IV, fig. 1b. The male palpi have the tarsus a little shorter and less angular than in *nigrina*. Figs. 1, 1a. The tarsal hook has a blunt point not widened at the tip as in *nigrina*. Fig. 1. The palpal organ has the middle process on the under side not straight as it is in *nigrina*, but curved around the base of the tube, and usually pointed at the tip with a tooth on the outer side; but this varies in different individuals. Fig. 1a.

Under leaves at all seasons. Tyngsboro, Cambridge, Mt. Mansfield, White Mountains. Flying from fences, Readville, Mass., in November.

Linyphia humilis, Em. Canadian Spiders, Trans. Conn. Acad. Vol. IX, 1894.

This species first described from the Rocky Mountains of Canada has now been found on the upper part of the Green Mountains, from Mt. Mansfield, Vermont, to Greylock, Mass., on Mt. Willard in the White Mountains, and at the sea level at Eastport and Machias, Me. It lives in the low firs and spruces that cover the tops of Greylock and Mansfield, and has not been found there below 2000 feet; and from 2000 to 4000 feet on Mt. Washington, most abundant in the dwarf trees along the road near the Half-way House, and becoming scarcer downward as far as the path to Hermit Lake. Found in the Great Gulf near the Appalachian Club camps. In Maine it lives also where the forest consists largely of stunted spruces in company with *Theridion zelotypum.* Both males and females are found in the Green Mountains in great abundance in the middle of June, and the young in September. The shape of the abdomen of the female is slightly pointed behind and high in the middle. Pl. IV, fig. 2c. The dorsal marking is divided by two notches at the sides into three parts, the middle part much smaller than the other two. Fig. 2b. The colors resemble *communis,* for which it may be sometimes mistaken. In the male the colors are much brighter, the cephalothorax and legs light orange and the abdomen brown. The head of the male is as high as it is wide and black between the eyes. The male palpi resemble those of *L. marginata* and have the tarsal hook showing plainly from above, curved in a half circle with the end slightly widened. Fig. 2a. The epigynum is shown in fig. 2d. See also figures in Trans. Conn. Acad. Vol. IX.

Epeira diademata, Cl.

Newport, R. I. on window frames, fences and vines around the building of the Historical Society and fences of neighboring gardens on Touro Street, Sept. 20, 1910. One adult ♂ under fence cap. Large females with nest above the web. A common European species reported from Vancouver, Wisconsin and Newfoundland, but now found far the first time in New England.

Zilla x-notata, Z. atrica.

Z. x-notata described in Trans. Conn. Acad., Vol. VI, 1884 from Woods Hole, Mass. is abundant at Provincetown, on wharves, barns and houses near the shore; also at Wellfleet and Harwich and at Newport, R. I., on the street fences; New Bedford on wharves and fish houses; and Fall River on boat houses, but in small numbers. None were found at Dighton and Taunton. On the same street at Newport where *Z. x-notata* is found on the fences *Z. atrica* occurs in hedges. It is also common at Fall River on hedges, fences and garden shrubs. At Taunton this species was absent, as well as *x-notata.*

Dictyna terrestris, new.

2 mm. long and resembling closely *D. volupis.* The front middle eyes are farther forward than in *volupis,* so that the middle eye area is longer than wide. Pl. IV, figs. 3c, 3d. The male palpus has the tibia short, not longer than wide, except on the outer side. The tarsus and palpal organ are very large and both curved downward more than in *volupis.* Fig. 3b. The mandibles of the male are not turned forward at the ends as much as in *volupis.*

Three Mile Island, N. H., June 1. Plum Island, Mass., June 17.

Argenna obesa, new.

Female 2.5 to 3 mm. long. Cephalothorax 1 mm. The whole body pale, cephalothorax a little darker than the abdomen. The hinder half of the abdomen indistinctly marked with angular spots. Pl. IV, fig. 4a. The abdomen is oval and longer than the cephalothorax. The head is wide and but little elevated. The front middle eyes are smallest, but only a little smaller than the upper middle pair, and the front eyes form a nearly straight row at equal distances from each other. The sternum is nearly as wide as long, and with a blunt point behind that extends backward between the fourth coxæ. The cribellum is small and undivided. Fig. 4. The fourth metatarsus is slightly curved and the calamistrum extends about half its length.

The male differs from the female in the smaller abdomen and longer and larger front legs. The male palpi have both the patella and tibia short and wide. The tarsus is nearly as wide as long and pointed at the end. The tibia has a wide process that extends forward along the outer side of the tarsus and against this lies a wide pointed appendage of the palpal organ supporting the end of the tube, somewhat as in Dictyna. Figs. 4c, 4d, 4e.

Abundant under straw on the edge of salt marshes at Ipswich and Plum Island. Adult males in June and July, Cold Spring Harbor, Long Island, N. Y., Miss Bryant.

Lathys foxii = Prodalia foxii, Marx. Ent. Soc. Washington, 1891.

2 mm. long. Pale, with the cephalothorax a little darker than the abdomen. Abdomen marked with a middle row of brown angular marks that in some individuals join a row of spots along the sides. Pl. IV, fig. 5. In the male the dark marks are wider so that there appear to be light marks on a darker ground. The front row of eyes is shorter than the upper row and the front middle eyes much smaller than the others. Pl. IV, fig. 5e. The sternum is nearly as wide as long, with a blunt point behind which extends between the fourth coxae. The cribellum is small and undivided. Fig. 5a.

The male palpi have the patella and tibia both very short. The patella is widened at the end so that seen from above it is twice as wide as at the base. The tibia is also widened at the end and has a groove above in which rests the end of the tube of the palpal organ, which extends along the outer side of the tarsus and turns inward and upward between tarsus and tibia. Fig. 5d.

Under leaves at all times in summer and autumn. Males from Hollis, Me., June 12. Females from Old Orchard Beach, Me., Holden, Carlisle, Huntington, Williamstown, Mass., Kent, Conn.

Pisaura brevipes, new.

A smaller and dark form of Pisaura formerly placed with *P. undata.* It is one-sixth smaller than *undata* and dark brown even when small and freshly molted, and the middle stripe has nearly straight sides, both on cephalothorax and abdomen, with a bright white line along its edges. The sides of cephalothorax and abdomen are dark brown. The legs are brown without rings. The first leg is shorter than the fourth and without the femur is shorter than the body, while in *P. undata* the first leg without the femur and patella is as long as the body. Pl. IV, figs. 6, 6b. The epigynum is slightly shorter and rounder than in *undata.* Figs. 6a, 6c.

Females from Mt. Tom, July, 1873, So. Framingham, May, 1910.

Lycosa quinaria, Em. Canadian Spiders, Trans. Conn. Acad., Vol. IX, 1894.

The male is 8 mm. long, the cephalothorax 5 mm. long, the fourth leg 14 mm. and the first leg 13 mm. The cephalothorax shows no markings in alcohol, and the legs have no spots or rings, but are irregularly striped lengthwise as in *Pardosa glacialis.* The male palpi are long and the tibia as long as the tarsus. The abdomen is gray with a white middle stripe more than half its length, continuing to the end in a row of spots. At the sides are similar spots in irregular rows. Pl. V, figs. 1, 1a.

Male in sphagnum bog, Bangor, Me., June 29, 1910. Female from Laggan in the Rocky Mountains in Canada. See Trans. Conn. Acad., Vol. IX.

Lycosa beanii, Em. Canadian Spiders, Trans. Conn. Acad., Vol. IX, 1894.

This species has the general appearance of *frondicola.* The middle stripe of the cephalothorax is straight at the sides and narrowed from the eyes backward. The femora are marked with indistinct rings and there are traces of rings on the other joints. The under side is somewhat lighter than the back and has no black spots or stripes. The epigynum is well shown in the figure in the paper on Canadian spiders.

Seal Harbor, Mt. Desert, Me., July 1, 1909.

Pardosa muscicola, new.

The male of this species has been confounded with *uncata* and the female with *glacialis.* The markings are much like *glacialis,* with the middle stripe of the cephalothorax more distinctly divided into three at the anterior end. The lance-shaped spot at the front end of the abdomen is equally distinct in both. The femora of *muscicola,* however, are marked with four distinct but somewhat broken rings resembling the femora of *tachypoda* and *uncata* rather than *glacialis.* Pl. V, fig. 2. The epigynum is wide as in *glacialis* but the anterior pit is single and the middle lobe straight with parallel sides in the posterior half. Fig. 2c. The male is rather lighter colored than that of *glacialis* and the tarsus and tibia of the male palpus are not black as in that species but colored as in *uncata.* The basal process of the palpal organ is shaped as in *uncata* but the long branch is longer and extends entirely across the tarsus, ending in a slightly curved blunt point. Fig. 2a, 2b.

This species lives with *glacialis, uncata* and *tachypoda* on the moss ot the upper part of the Green Mountains and White Mountains and in Labrador and Newfoundland.

Pirata montanus, Emerton. Trans. Conn. Acad., Vol. VI, 1885.

The female only is described in N. E. Lycosidæ, Trans. Conn' Acad., 1885. The male resembles the female in size and markings but has greater contrasts in colors, and the legs marked with black, It is 5 mm. long and the cephalothorax 3 mm. The eyes as in the female extend over nearly the whole width of the head and the two upper pairs are nearly as large and conspicuous as in Pardosa. The femora of legs 1 and 2 are black and the other femora have black spots near the end. The cephalothorax is black with the usual light middle stripe divided in front into three, and extending forward between the eyes. Fig. V, fig. 3. The abdomen is gray, turning a little reddish in alcohol. It has a distinct light and dark pattern consisting of the usual pointed middle mark in front, and a series of bright white spots of hairs and narrow white marks along the sides toward the front, varying in different individuals. The front of the head and mandibles are black and the under side of the body gray, with a narrow light line on the sternum as in the female. The male palpi are very simple, much as in *P. minuta.* Fig. 3a. The basal part of the palpal organ has a flat border that extends forward, nearly covering the short tube and a thin appendage of variable shape near the outer end of the tarsus.

Males and females from Mt. Toby in the central part of Massachusetts, June 12, 1902. Mt. Everett, Mass. Ithica, N. Y.

Liocranum calcaratum, new.

Both sexes 2.5 mm. long. Cephalothorax slightly longer in the male than in the female. The cephalothorax and legs are pale yellow brown, the cephalothorax sometimes brighter and redder than the legs. The abdomen is short, oval, and pale, with gray markings,—a middle stripe extending from the front to the middle and four or five transverse stripes, the second and sometimes the first connected with the middle stripe. Pl. V, figs. 4, 4 c. Legs 1 and 2 have five pairs of long spines under the tibia and three pairs under the metatarsus in both sexes. Fig. 4b. The head is narrowed toward the front. The eyes are in two rows, nearly parallel, the front row shortest with the middle eyes much smaller than the lateral. The upper row of eyes is slightly curved downward at the ends and the eyes are of the same size and equal distances apart.

The male palpus has the tibia half longer than wide with a short process curved forward on the middle of the outer side. The tarsus is nearly as wide as long and pointed at the end. The tube of the palpal organ is short and has opposite to it a supporting process about the same size and shape. Figs. 4 e, 4 f.

Females, Crawford Notch, Sept. 20, Great Gulf of Mt. Washington, Aug. 1. Males, Jackson, N. H. June 1, Katahdin, Me. July 4.

Zora spinimana, Snd.

5 mm. long, cephalothorax 2 mm. long and 1.5 mm. wide. The cephalothorax is narrowed in front where it is less than 1 mm. wide. The eyes are all nearly of the same size, the front row slightly curved backward, and the upper row strongly curved as in Dolomedes. The color is pale with distinct dark brown stripes and spots. The cephalothorax has two dark stripes extending straight backward from the lateral eyes and two less definite stripes along the edges. The abdomen has two stripes made up of irregular spots a little farther apart than the stripes of the cephalothorax, and between these two rows of smaller spots converging behind. Pl. V, fig. 5. On the under side the whole body is pale with scattered dark spots. The under pair of spinnerets have a brown stripe on the outer side. The legs are spotted and have a dark ring at the end of the metatarsus, which in the first legs covers nearly the whole joint. The tibia of the first leg is thickened in the middle and has underneath two rows of spines 7 on the outer and 8 on the inner side. Fig. 5b. The metatarsus of the first leg has underneath three pairs of long spines. The second leg has the same thickening in a less degree and similar, but smaller spines. The epigynum has two indistinct openings in front between and behind which a pair of curved tubes and large round receptacles show through the skin. Fig. 5a.

Tyngsboro, Mass. under leaves, mature female, Oct. 16 and immature female in January. A common species in Europe.

Micaria longispina, new.

Male 2.5 mm. long, resembling in form and color *M. gentilis*, but smaller than the usual size of that species. The male palpus has the tibia and patella both short, together as long as the tarsus. The tibia has a long process on the outer side, turned obliquely upward along the edge of the tarsus. Pl. V, figs. 6, 6a, 6b.

Ellisville, Plymouth, Mass., May 10.

Phrurolithus formica, Banks. Journal N. Y. Ent. Soc., 1895.

Found only in nests of the ant *Cremastogaster lineolata.* Males and females are 3 mm. long, in life dark gray, turning to brown in alcohol. Pl. VI, fig. 1. The legs are a little paler and the abdomen a little darker than the general color. The abdomen has a hard shining shield covering the whole upper surface. The front half of the under side of the abdomen is pale, the spot varying in size in different individuals. The epigynum shows externally a large dark brown area, widest behind and nearly square, with rounded corners, behind which the receptacles show indistinctly through the skin. Fig. 1 b. Smaller and apparently younger females have the epigynum more distinct without the opaque brown area. Fig. 1 c. The male palpi are large and of characteristic form. Figs. 1 d, 1 e. The femur has a knob-shaped process on the middle of the under side. The process on the outer side of the tibia is short and wide with a long pointed tooth on the upper corner. Figs. 1 d, 1 e. On the inner side of the tibia is a large blunt tooth. The palpal organ has a large thick bulb with a long slender tube turned inward toward the tip of the tarsus.

Forest Hills, Boston, Mass., W. M. Wheeler, Tyngsboro, Mass., F. Blanchard. Found by Banks on Long Island, N. Y.

In the spring when the ants come up and rest in large numbers under stones over their burrows, the spiders are found among them. If not frightened they move slowly about like the ants and disappear under ground. If frightened they move much more rapidly than the ants and down into the nest or out into the surrounding grass.

Phrurolithus minutus Bks. Ithaca Spiders, Proc. Phil. Acad., 1892.

Male 2 mm. long. Abdomen covered with a hard shiny plate and strongly iridescent. Cephalothorax with a narrow light band extending back from the eyes to the dorsal groove behind this widening into a nearly square spot. Pl. VI, fig. 2. The legs are pale except the first pair, which have the tibia black with a white tip and the patella and end of the femur also black, and the second pair which have less distinctly the same markings. The palpi are dark but not black. The tibia of the male palpus has on the outer side a long slender process divided at the end into a short, square lower tooth and a long slender, sickle-shaped upper tooth. The tibia is longer than wide and the outer process starts from its basal half. Figs. 2 a, 2 b. On the under and inner side of the tibia is a short, blunt tooth directed forward.

Tyngsboro, Apr. 5, 1909, in open field under straw. One adult male and several immature males and females.

Phrurolithus borealis.

P. alarius (in part) Em. Trans. Conn. Acad., 1890.

Male 2 to 2.5 mm. long. Cephalothorax light in the middle and dark at the sides without any defined markings. Abdomen dark and iridescent with traces of a pattern on the hinder half. Legs 3 and 4 pale without any spots. Leg 1 has the tibia black with a white tip and leg 2 has the same colors less strongly marked. The patella and end of the femur of leg 1 are also dark colored. The male palpus is dark colored its whole length. The tibia is as wide as long and has on the outer side, starting in the middle, a long process that widens toward the end where it is truncated obliquely and has on the upper corner a short, slightly curved tooth turned inward. Pl. VI. fig. 3, 3a.

The female is a little larger than the male, with the abdomen larger and less iridescent and with the hinder half marked with light and dark chevrons. The front half has the markings absent or indistinct and is sometimes gray and sometimes paler than the rest of the back. The epigynum has the receptacles twice their diameter apart. Under side of abdomen pale or with two faint longitudinal lines.

New Haven, Conn., Tyngsboro, Mass., Three Mile Island, Lake Winnipesaukee, N. H., Crawford Notch.

Phrurolithus alarius, Hentz.
Phrurolithus palustris Bks. Ithaca Spiders, Proc. Phil. Acad. 1892.
P. alarius (in part) Em. Trans. Conn. Acad. 1890.

This species and *borealis* were included under the name *P. alarius* Hentz in New England Drossidæ, etc. in Trans. Conn. Acad. 1890. Male and female 2 to 2.5 mm. long. The cephalothorax is pale with a black line along the edges and two dark bands extending back from the eyes and nearly meeting behind. The abdomen is marked by short lines and chevrons more or less broken into spots, especially in the female. Legs 1 and 2 have the tibia marked with black and white and legs 3 and 4 have the joints tipped with gray and a gray mark in the middle of the tibia. In pale individuals the legs are sometimes without markings, even the dark color of tibia 1 being almost absent. In very dark males the bands of the cephalothorax may be united with the black edges and the abdomen may have the markings covered with gray so as to be very indistinct. The male palpus Pl. VI, figs. 4, 4a, has the process of the tibia tapering toward the point and curved inward as figured in Trans. Conn. Acad. 1890, Pl. VI, fig. 5e and 5g. The epigynum has the receptacles not more than their diameter apart. The under side of the abdomen has usually two gray spots near the middle, one just in front of the spinnerets and others along the sides.

Around Boston Mass., Hollis, Me., Lake Winnipesaukee, N. H., south to No. Carolina.

Prosthesima rufula Bks. Phil. Acad. 1892.

This is the only brown species found in New England, the others all being black or gray. A new figure is given of the male palpus. showing better the form of the palpal organ than the one in Trans. Conn. Acad. 1909, Pl. V, fig. 7. The peculiar form of the tibial hook is correct in both figures, but the tube of the palpal organ is slender and does not extend the whole length of the outer side of the tarsus.

Prosthesima depressa Em. Conn. Trans. Acad., Vol. III, 1890.

Only the female was described in 1890. The males are 5 mm. long and resemble the female. The general color is black but the tarsus and metatarsus of legs 1 and 2 are pale, contrasting strongly with the black of the other joints. The legs 3 and 4 are pale with darker color toward the ends of the joints, nearly covering the tibia. The male palpi have the tarsus more pointed than in *atra*, with the tube of the palpal organ directed toward the tip. Pl. V, fig. 8c. The tibia has a process on the outer side that varies in form. In some individuals it is sharply pointed, as long as the diameter of the tarsus, and nearly straight; in others it is of the same length and curved, while in others it is short and rounded at the end and curved nearly at a right angle. Figs. 8, 8a, 8b. All these forms of the tibia have been found in specimens collected in the same place at the same time.

Blue Hills, Milton, near Boston, Mass., Three Mile Island N. H.

Prosthesima transversa, new.

Male 5 mm. long. Two specimens dark-colored and one light, apparently lately molted, but neither showing the contrast between light and darks markings which is conspicuous in *depressa*. The palpi have the tarsus larger than in *depressa* and the tibia thicker, with the process straight and the tip flattened and rounded and not much curved. Pl. V, fig. 9. The palpal organ is distinctly different from that of the other species, the tube turns forward and ends in the notch at the tip of the tarsus as usual, but at its base begins a slender process nearly as long as the tube which crosses it to the outer edge of the tarsus. The basal processses of the bulb differ slightly in the different individuals, but in all are longer and more slender than in *depressa*, Figs. 9a, 9b.

Blue Hills and Middleboro, Mass., New Haven, Conn.

Dentryphantes castaneus, (Hentz), Peckham. Revision of the Attidæ of North America, Trans. Wis. Acad., 1909.

Female 6 mm. long. Cephalothorax 3 mm. The cephalothorax is covered with short gray hairs but in alcohol the whole front half appears black and the hinder half brown. The abdomen is brown with a white stripe around the front. There are fine waving black lines running irregularly lengthwise and in the middle of the hinder half a middle row of indistinct herringbone markings. In alcohol the markings are more distinct and there is none of the red color which is so evident in the other species of Dendryphantes. Pl. VI, fig. 5. The legs are pale with faint brown marks across the middle of the joints which are deeper colored on the patella, tibia and femur of the first legs. On the under side the legs are pale, including the coxæ and sternum, with no marking except on the front pair. The under side of the abdomen has three black stripes from the epigynum, nearly to the spinnerets and at the sides the waving black lines extend underneath. Fig. 5a. The epigynum has a short rounded notch showing nothing distinctive.

Gloucester, Mass. in a sphagnum bog, Aug. 25, 1910. Found before by Banks in the southern states from Washington to North Carolina.

Sittacus striatus, new.

Female 5 mm. long. Male 3.5 mm. Cephalothorax in both sexes 2 mm. long. The cephalothorax is less narrowed in front and has the sides straighter than in *S. palustris.* The cephalothorax has three narrow light stripes. The markings of the abdomen are much like those of the female *Dendryphantes militaris,* the middle markings only slightly larger than the others. Pl. VI, figs. 6, 6b. Neither specimen has the large middle light mark which is conspicuous in *palustris.* The legs are striped lengthwise, while in *palustris* they are ringed crosswise, but on the under side there are indistinct rings on the femura. The general color is light yellow-brown like straw, much lighter than the usual color of *palustris.* The male palpus has a sharp process on the outside of the tibia nearly as long as the rest of the joint, as in *palustris,* but the bulb of the palpal organ is circular while in *palustris* it always has a depression on the outer edge. Figs. 6, 6e.

A male and female were taken in straw on a salt marsh at Plum Island, Mass., June 17 and another female in a sphagnum bog at Bangor, Me. June 30.

PLATE I

1 Theridion globosum, side of ♂. 1a cephalothorax, eyes and palpi from above. 1b sternum and palpi from below.

2 Teutana grossa, dorsal markings of ♂. 2a sternum and maxillæ.

3 Pedanostethus fuscus, base of palpal organ, 3a same of P. pumilus, 3b same of P. riparius, 3c same of P. spiniferus.

4 Ceratinella sphaerica, side of ♂. 4a dorsal view of ♂. 4b male palpus. 4c tibia and tarsal hook of male palpus.

5 Ceratinella carinata, tibia and tarsus of male palpus. 5a same of C. laetabilis. 5b same of C. laeta. 5c same of C. brunneus.

6 Grammonota trivittata, cephalothorax and palpi of ♂. 6a same of G. ornata. 6b male palpus of G. trivittata. 6c same of G. ornata.

7 Araeoncus bispinosus, side of cephalothorax of ♂. 7a head and palpi of ♂. 7b male palpus. 7c sternum.

8 Dicymbium pectinatum, side of cephalothorax of ♂. 8a metatarsus of first leg. 8b upper side of male palpus. 8c outer side of right palpus. 8d under side of male palpi.

9 Histagonia nasuta, cephalothorax of ♂. 9a side of cephalothorax of ♂. 9b, 9c male palpi.

Plate I

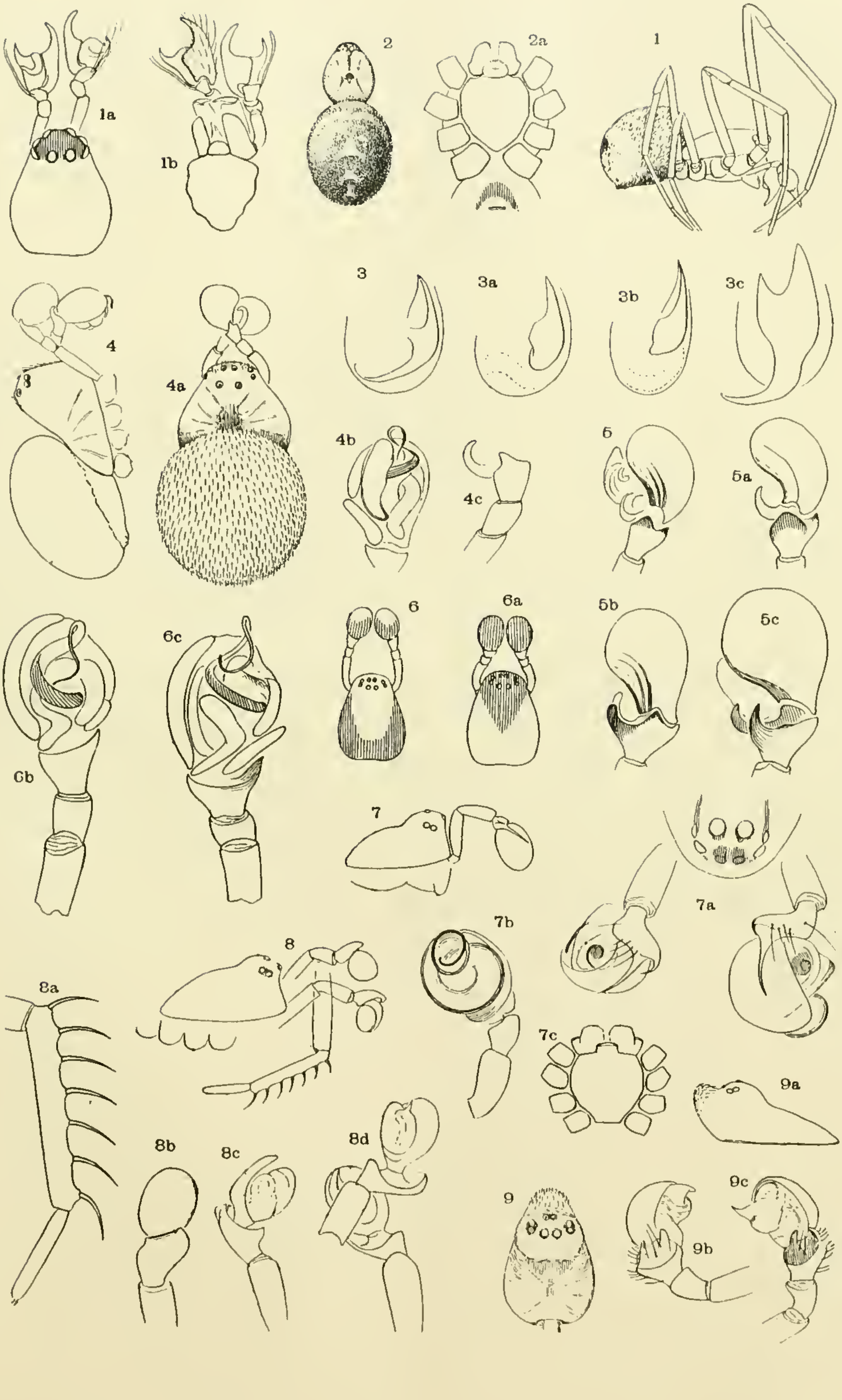

1a
1b
2
2a
1
3
3a
3b
3c
4
4a
4b
4c
5
5a
6
6a
5b
5c
6c
6b
7
7a
7b
8
8a
7c
9a
8b
8c
8d
9
9b
9c

PLATE II

1 Lophocarenum bilobatum, male from above. 1a side of cephalothorax. 1b male palpus.

2 Lophocarenum exiguum, side of cephalothorax of male. 2a front of male and palpus. 2b left palpus. 2c top of head.

3 Lophocarenum excavatum, side of male. 3a head of male from in front and above. 3b male palpus. 3c epigynum.

4 Lophocarenum arenarium, dorsal view of male. 4a side of cephalothorax. 4b male palpus, outer side. 4c epigynum.

5 Lophocarenum domiciliorum, head and palpi of male. 5a side of head. 5b male palpus. 5c tibia of male palpus, inner side.

6 Lophocarenum flagellatum, head and palpi of male. 6a cephalothorax slightly turned to show grooves in head. 6b side of cephalothorax.

7 Lophocarenum decemoculatum and florens. 7 eyes of decemoculatum. 7a eyes of florens. 7b epigynum of decemoculatum 7c epigynum of florens.

8 Lophocarenum (Tmeticus) armatum. 8 dorsal view of cephalothorax showing pits in the head, eyes and mandibles. 8a side of cephalothorax. 8b under side of cephalothorax. 8c head and eyes of female. 8d under side of female. 8e male palpus. 8f patella of male palpus from the side. 8g front of head and mandibles of male. 8h tarsal hook and base of tarsus.

Plate II

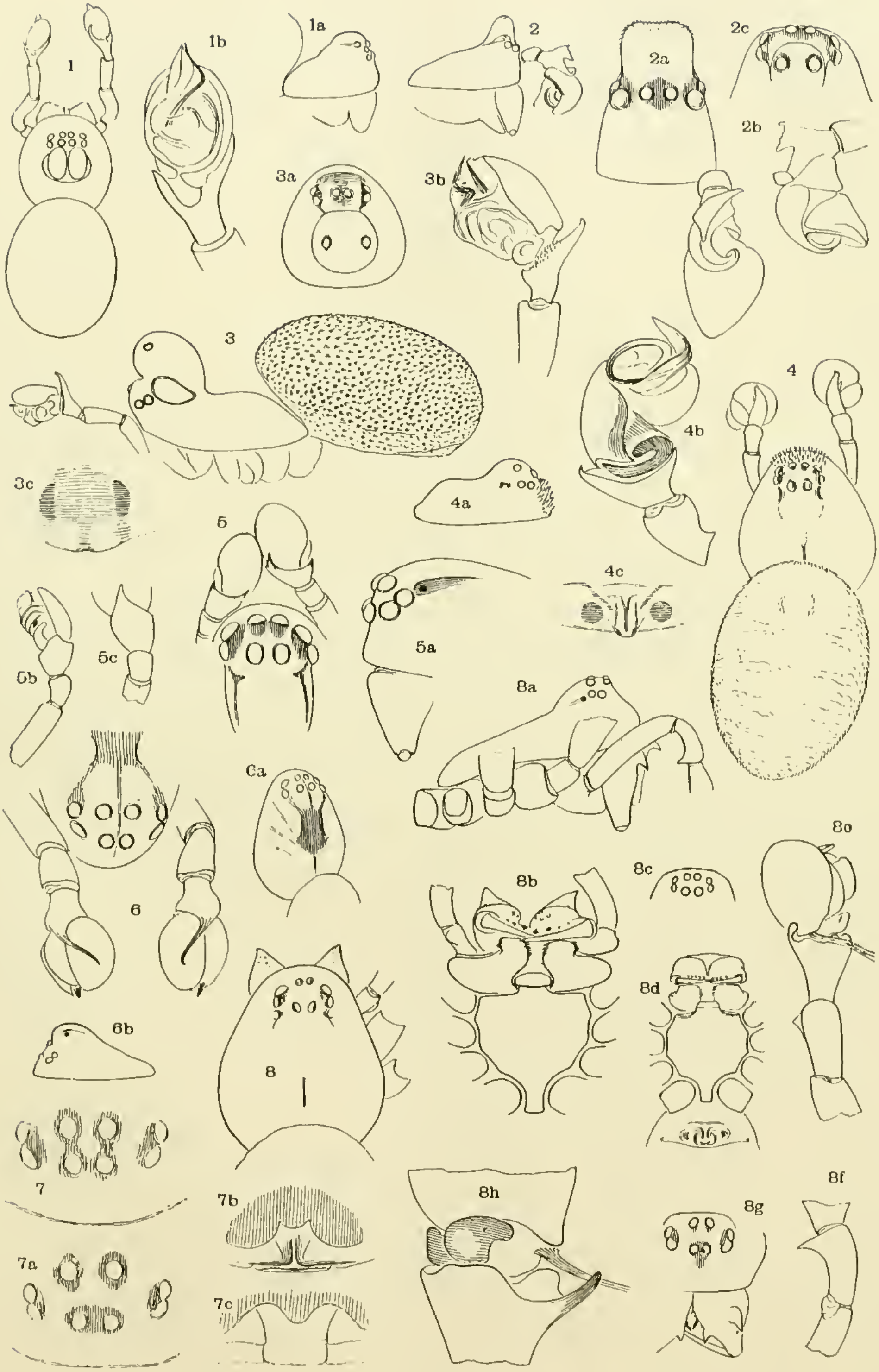

1
1b
1a
2
2a
2c
2b
3a
3b
3
4b
4
3c
4a
5
4c
5c
5a
5b
8a
6a
6
8c
8b
8e
8d
6b
8
7
7b
8h
8g
8f
7a
7c

PLATE III

1 Tmeticus aestivalis, male palpi from below. 1a palpus from outer side. 1b palpus from above. 1c epigynum.

2 Tmeticus tarsalis, side of cephalothorax of ♂. 2a palpal organ. 2b male palpus showing tarsal hook and wide tarsus.

3 Tmeticus entomologicus, head and palpi of ♂. 3a male palpus from side.

4 Tmeticus tenuipalpis, side of ♂. 4a maxillæ and mandibles of ♂. 4b front of head and mandibles of ♂. 4c male palpus from below. 4d male palpus from above. 4e epigynum.

5 Microneta olivacea, cephalothorax and palpus of ♂. 5a male palpus, outer side. 5b side of cephalothorax of male. 5c side of cephalothorax of female. 5d palpus of female. 5e palpus of female from Narcross, Me., without enlarged tarsus. 5f mandible of female. 5g top of cephalothorax of female. 5h front of female showing enlarged palpi. 5i and 5k epigynum.

6 Bathyphantes theridiformis, back of male. 6a male palpus. 6b mandibles of male. 6c epigynum.

7 Bathyphantes intricata. 7, 7a, 7b, 7c, 7d male palpus.

Plate III

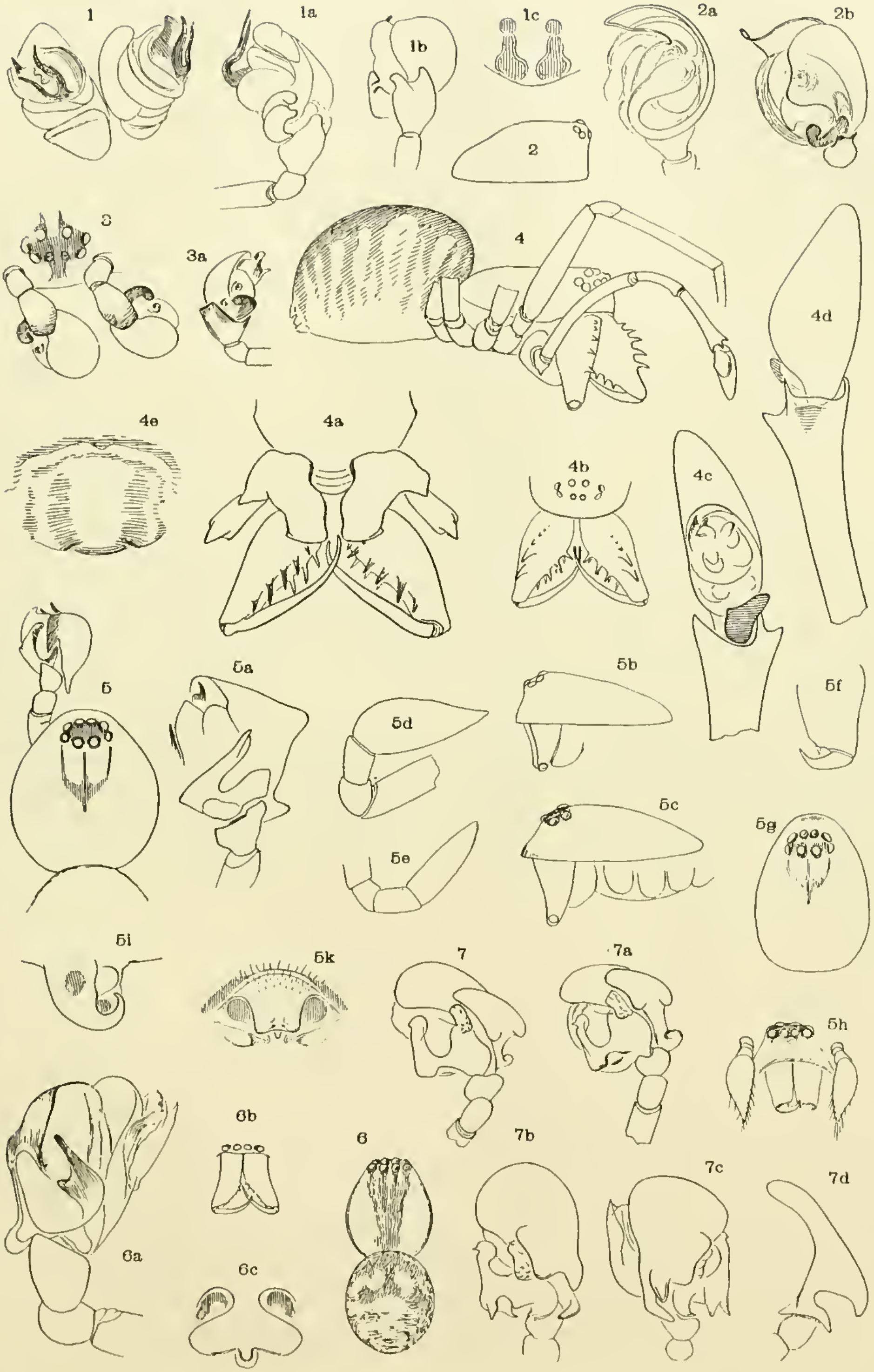

1
1a
1b
1c
2a
2b
2
3
3a
4
4d
4e
4a
4b
4c
5
5a
5d
5b
5f
5c
5g
5e
5i
5k
7
7a
5h
6b
6
7b
7c
7d
6a
6c

PLATE IV

1 Diplostyla brevis, outer side of male palpus. 1a under side of male palpus. 1b epigynum.

2 Linyphia humilis, front and mandibles of male. 2a top of head and palpi of male. 2b dorsal markings of female. 2c side of abdomen. 2d epigynum.

3 Dictyna terrestris, side of head and palpus of male. 3a mandibles of ♂. 3b male palpus. 3c head and palpus of male. 3d head and palpus of D. volupis for comparison.

4 Argenna obesa, under side of female. 4a back of female. 4b, 4c, 4d, 4e male palpus.

5 Lathys foxii, dorsal markings. 5a under side of female. 5b, 5c male palpus. 5d male palpus from above. 5e eyes.

6 Pisaura brevipes, dorsal markings and diagram showing relative length of first leg. 6a epigynum. 6b diagram showing relative length of first leg of P. undata. 6c epigynum of P. undata.

Plate IV

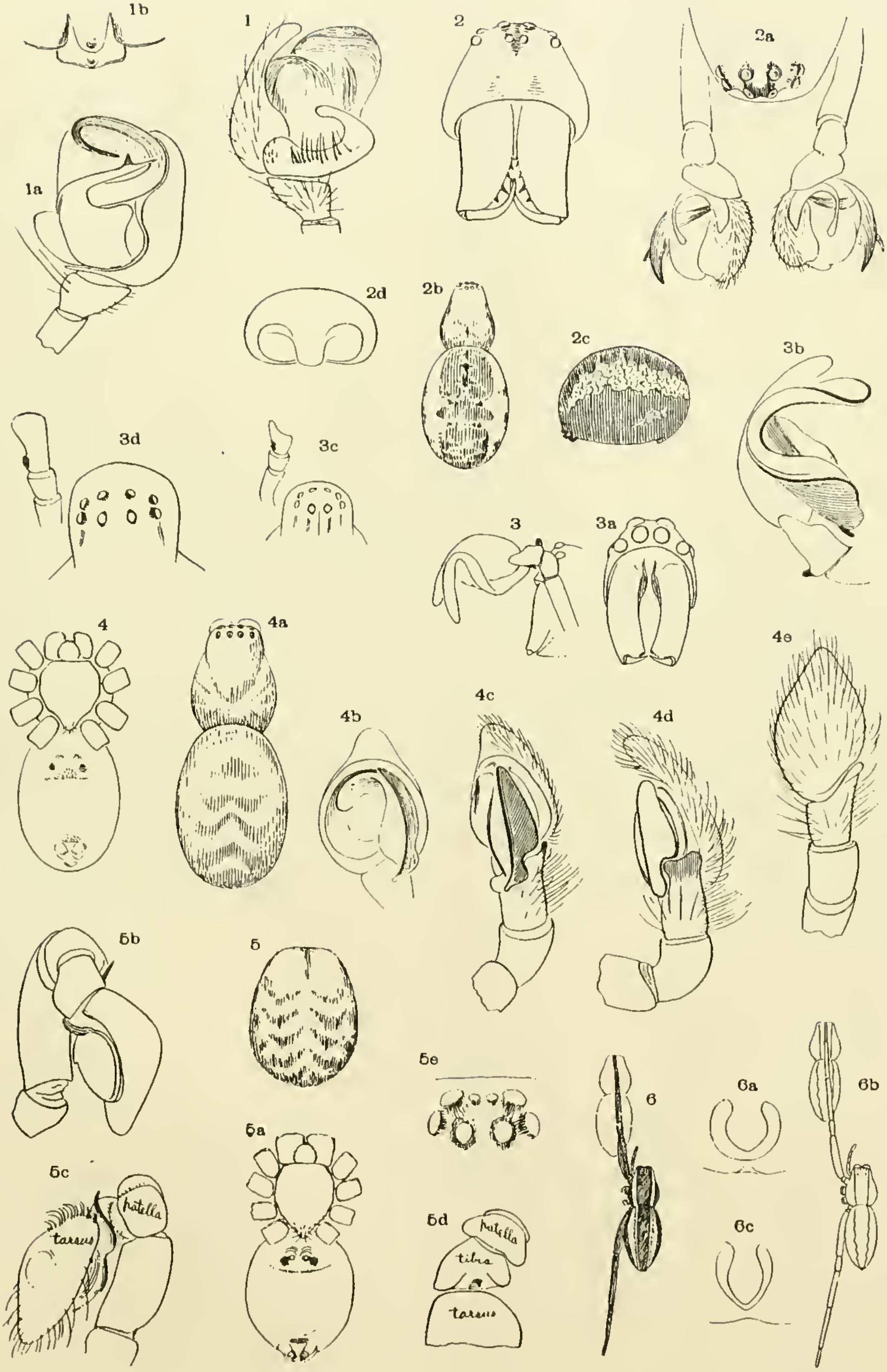

1b
1
2
2a
1a
2d
2b
2c
3b
3d
3c
3
3a
4
4a
4e
4c
4b
4d
5b
5
5e
6
6a
6b
5a
5c
patella
tarsus
5d
patella
tibia
tarsus
6c

PLATE V

1 Lycosa quinaria, back of ♂ with palpus. 1a palpus of ♂ under side.

2 Pardosa muscicola, dorsal markings of ♂. 2a male palpus from below. 2b male palpus from the side. 2c epigynum.

3 Pirata montana, dorsal markings. 3a palpus of ♂, under side.

4 Liocranum calcaratum, back of ♀. 4a under side of ♀. 4b first leg of ♀ showing spines. 4c back of ♂. 4d epigynum. 4e male palpus. 4f male palpus showing palpal organ.

5 Zora spinimana, dorsal markings of ♀. 5a epigynum. 5b first leg showing spines.

6 Micaria longispina, palpal organ. 6a, 6b, palpus of ♂ showing tibial spine.

7 Prosthesima rufula, palpus of ♂.

8 Prosthesima depressa. 8, 8a, 8b three forms of tibial spine. 8c palpus of ♂ showing palpal organ.

9 Prosthesima transversa, palpus of ♂ showing palpal organ. 9a tibial spine from above. 9b tibial spine from outer side.

Plate V

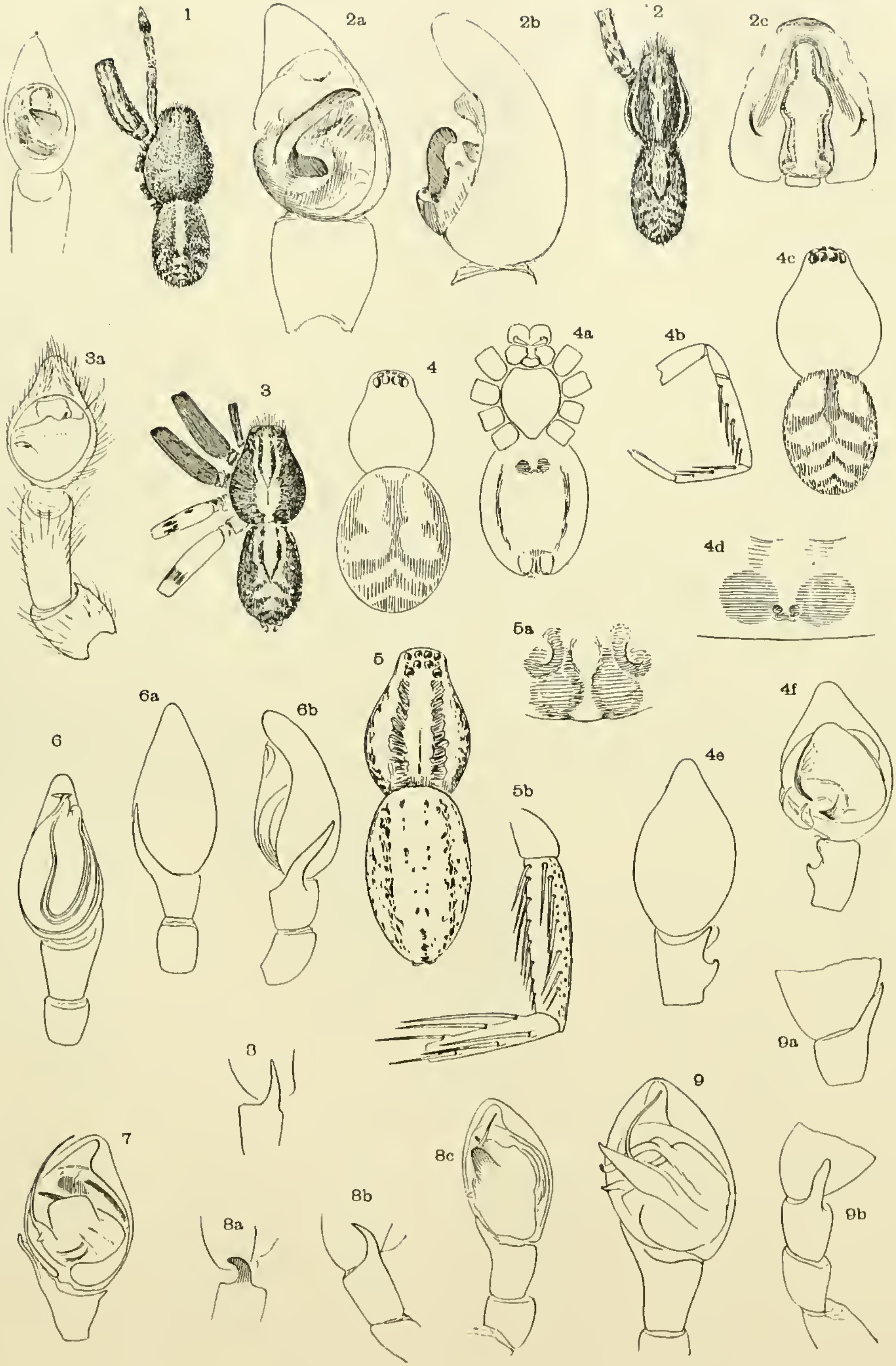


PLATE VI

1 Phrurolithus formica, back of female. 1a sternum and maxillae. 1b epigynum of old female. 1c epigynum of young female. 1d palpus of male. 1e palpus of ♂ from above.

2 Phrurolithus minutus, back of ♂. 2a palpus of ♂. 2b tarsus of palpus from above.

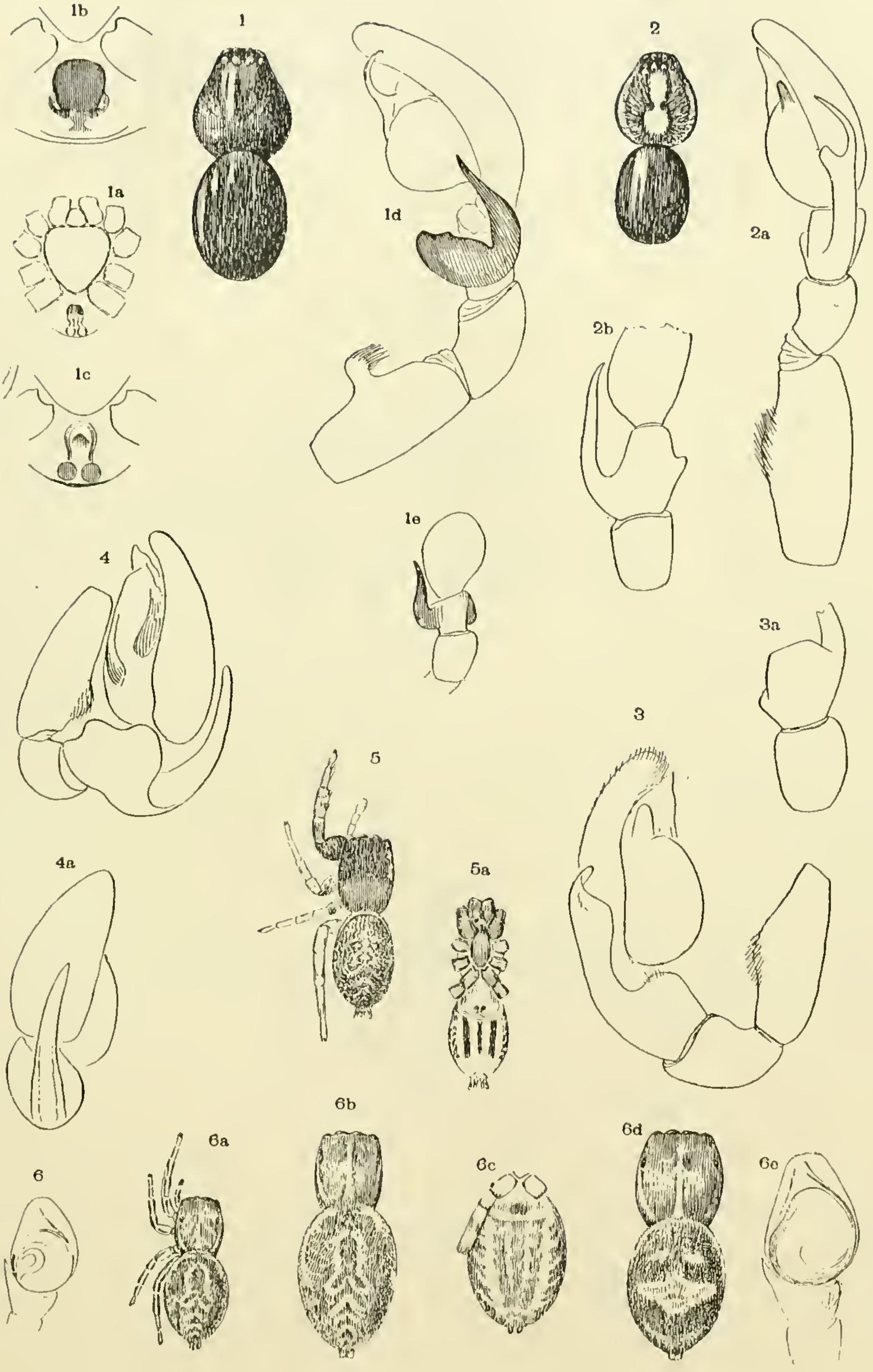
3 Phrurolithus borealis, palpus of ♂, outer side. 3a tarsus of palpus.

4 Phrurolithus alarius, palpus of ♂, outer side. 4a palpus of ♂ from above.

5 Dendryphantes castaneus, dorsal markings as they appear in alcohol. 5a markings of under side.

6 Sittacus striatus, palpus of ♂ showing palpal organ. 6a female from above. 6b dorsal markings of ♀. 6c ventral markings of ♀. 6d dorsal markings of S. palustris. 6e male palpus of S. palustris.

Plate VI



TRANSACTIONS OF THE
CONNECTICUT ACADEMY OF ARTS AND SCIENCES
INCORPORATED A. D. 1799
VOLUME XVI 1910-11

Publications of Yale University

YALE UNIVERSITY PRESS

NEW HAVEN, CONNECTICUT
1911

THE R. WAGNER SOHN PRESS

OFFICERS FOR 1910-11.

President.

Hon. SIMEON E. BALDWIN.

Vice-Presidents.

Prof. ALEXANDER W. EVANS,
Prof. CLIVE DAY,
Prof. HANNS OERTEL.

Secretary.

Dr. GEORGE F. EATON.

Treasurer.

Mr. GEORGE PARMLY DAY.

Librarian.

Mr. JOHN CHRISTOPHER SCHWAB.

Committee on Publication.

Hon. S. E. BALDWIN, Chairman,
Prof. A. S. COOK,
Prof. E. S. DANA,
Prof. E. P. MORRIS,
Prof. A. W. EVANS,
Prof. CLIVE DAY,
Prof. H. OERTEL,
Mr. J. C. SCHWAB.

CONTENTS.

PAGE

ADDITIONS TO THE LIBRARY, MAY 1, 1910 TO JUNE 30, 1911 . . vii—xxix

ART. I.—THE AMPHIPODA OF BERMUDA. BY BEVERLY WAUGH KUNKEL 1—116

ART. II.—THE CLAUSULA IN AMMIANUS MARCELLINUS. BY AUSTIN MORRIS HARMON . . . . 117—245

ART. III.—NUTRITION INVESTIGATIONS ON THE CARBOHYDRATES OF LICHENS, ALGAE, AND RELATED SUBSTANCES. BY MARY DAVIES SWARTZ . . . . 247—382

ART. IV.—NEW SPIDERS FROM NEW ENGLAND. BY J. H. EMERTON 383—407

ADDITIONS TO THE LIBRARY

OF THE

CONNECTICUT ACADEMY OF ARTS AND SCIENCES

By Gift and Exchange from May 1, 1910, to June 30, 1911.

- Aix-en-Provence.—*Université.*
  - Faculté des lettres Annales I–III, 2. 1907–09.
  - Faculté de droit. Annales I–IV, 2. 1907–10.
  - Faculté de droit et des lettres. Annales I–II, 2. 1905–06.
- Altenburg, S.-A. *Naturforschende Gesellschaft des Osterlandes.*
  - Mitteilungen aus dem Osterlande. N. F. 1910.
- *American Academy of Arts and Sciences.*
  - Proceedings. XLVI, 13–24, XLVII, 1–3. 1911.
- *American Antiquarian Society.*
  - Proceedings. XX, 2. 1910.
- *American Geographical Society.*
  - Bulletin. XXXIX, 1–XLIII, 6. 1907–11.
- *American Museum of Natural History* (New York).
  - American Museum Journal. X, 3–XI, 5. 1910–11.
  - Guide Leaflet. 24, 26–30, 33. 1907–11.
- *American Philosophical Society.*
  - Proceedings. XLVIII, 194–L, 198. 1909–11.
- *American Society of Sanitary and Moral Prophylaxis.*
  - Educational pamphlets. 1–6. 1910.
- Amherst College.
  - Catalogue. 1910–11.
- Amiens.—*Académie des Sciences.*
  - Mémoires. LVI. 1909.
  - *Société Linnéenne du Nord de la France.*
    - Bulletin. No. 225, 1891; XIX, 381–92. 1908–09.
- Amsterdam.—*Koninkl. Akademie van Wetenschappen.*
  - Jaarboek, 1909.
  - Proceedings. Section of sciences. XII, 1–2. 1909/10.
  - Verhandelingen. Afd. Natuurkunde, Sectie II, Deel XV, 1–3, XVI, 1–2. 1909/10.
  - Verslagen van de gewone vergaderingen van de wis- en natuurkundige afdeeling. Deel XVIII, 1–2. 1909/10.
  - *Maatschappij tot nut van 't Algemeen.*
    - Publikation. 93, also IX, 4. 1911.
- *The Apteryx.* (Roger Williams Park Museum, Providence, R. I.), I, 1–3. 1910.
- Argentine Republic.
  - *Agricultural and pastoral census of the nation.* Monograph. I–III. 1908.

Australasian Association for Advancement of Science.
Report of Meeting. XII. 1909.
Address of President. 1907. Section C.

BAMBERG.—*Remeis Sternwarte.*
Veröffentlichungen. Reihe II, Band I, Heft 1. 1911.

BASEL.—*Naturforschende Gesellschaft.*
Bericht. XXI. 1909.
Verhandlungen. XX, 3–XXI. 1910.

BATAVIA.—*K. Natuurkundige Vereeniging.*
Natuurkundig Tijdschrift. XL, Ser. 8, 1; XLIII, 1–4.
R. Magnetical and Meteorological Observatory.
Observations. XXX–XXXI and append. 1907–08.
Observatory.
Erdbeben Bericht. 6a–c, 7a–b, 8a, 9a, 11a, 12a. 1909.
Seismological Bulletin. Jan. to Dec. 1910; Feb. 1911.

BELGIUM.—*Académie R. d'Archéologie de Belgique.*
Bulletin. I–IV. 1910.

BERGEN.—*Museum.*
Aarsberetning. 1909.
Aarbog. 1909, 2 to 1910, 2.
Crustacea of Norway. By G. O. Sars. Vol. V, parts XXVII–XXX.

BERLIN.—*K. Museum für Naturkunde.*
Mitteilungen aus dem Zoologischen Museum. IV, 3; V, 1–2. 1910–11.
Bericht des Zoologischen Museums. 1909.

BIRMINGHAM.—*Natural History and Philosophical Society.*
List of Members and Annual Report. 1910–11.
Proceedings. I–XII.

BOLOGNA.—*R. Accademia delle Scienze dell'Istituto di Bologna.*
Memorie. Classe di Scienze Morali. Sezione di Scienze Storico-Filologiche. Ser. I. T. III, 2–IV, 1. 1908–10. Sezione di Science Giuridiche. Ser. I. T. III, 2–IV, 1. 1908–10. Adunanza, June 22. 1910.
Rendiconti. Classe di Scienze Morali. Ser. I. T. III. 1909–10. Classe di Scienze Fisiche. Anno 1883–4; N. S., V, 1–4. 1900–01; XIII, 1908–09.

BOMBAY.—*R. Asiatic Society.*
Journal, Bombay Branch. LXIV. 1909.

BONN.—*Naturhistorischer Verein der preussischen Rheinlande und Westfalens.*
Sitzungsberichte. 1909, 2 to 1910, 1.
Verhandlungen. I–IV, VI–VII, XXIII, 1–2, 1844–66; LXVI, 2. 1910.

BORDEAUX.—*Commission Météorologique de la Gironde.*
Bulletins. 1908, 1909.
Société des Sciences Physiques et Naturelles.

Mémoires. T. V, 1.
Procès-verbaux. 1908–09; 1909–10.
BOSTON, Mass.—*Museum of Fine Arts.*
Bulletins. 46–51.
Annual Report. XXXV, 1910.
Society of Natural History.
Proceedings. XXXIV, 9–12. 1910.
BRADFORD.—*Scientific Association.*
Journal. III, 2. 1910.
BREMEN.—*Meteorologisches Observatorium.*
Deutsches Meteorologisches Jahrbuch. XX. 1909.
BRESLAU.—*Schlesische Gesellschaft für vaterländische Cultur.*
Jahres-Bericht. LXXXVIII, 1909.
Naturwissenschaftlicher Verein.
Abhandlungen. XX, 1. 1910.
BROOKLYN.—*Museum of the Brooklyn Institute of Arts and Sciences.*
Bulletins. IV, 11, 14–16; VI, 3–8, 15. 1910–11.
Science Bulletins. I, 17 and Index, 1910.
Museum News. V, 6–8; VI, 1–8. 1911.
Year Books. 1907/08–1909/10.
BRÜNN.—*Naturforschender Verein.*
Verhandlungen. XLVII. 1909.
BRUNSWICK.—*Verein für Naturwissenschaft.*
Jahresbericht. XVI. 1907/08–1908/09.
BRUSSELS.—*Académie R. des Sciences, des Lettres et des Beaux-Arts de Belgique.*
Annuaire. LXXVI–LXXVII, 1910–11.
Bulletins. Classe des Sciences. 1909, 9 to 1911, 4.
Mémoires. Classe des Sciences. Sér. II. T. II. Fasc. VII–VIII. T. III. Fasc. I–IV in 8vo. T. II.
Jardin Botanique de l'État.
Bulletin III, 1.
Musée R. d'Histoire Naturelle.
Mémoires. T. IV–V. 1907–08.
Observatoire Royale.
Annales Astronomiques XII, 2–XIII, 1. 1910.
Annuaires Astronomiques. 1911–12.
Société Entomologique.
Annales. LIII–LIV.
Mémoires. XVIII. 1911.
Société R. de Botanique.
Bulletins. XLVI, 1–4, XLVII, 1–4; also XVI–XVII, 1–3, XVIII, XX. 1878–1881.
Société R. Belge de Géographie.
Bulletin. XXXIII, 1–XXXIV, 6. 1909–10.

BRUSSELS.—*Société R. Zoologique et Malacologique.*
Annales. XLIV. 1909.
Société des Sciences.
Annales. XXXIV, 2–4; XXXV, 1–2. 1909/11.
Revue des Questions Scientifiques. Sér. III, XVII, 1–XIX, 2. 1910–11.
BUCAREST.—*Observatorul Astronomic si Meteorologic.*
Bulletin Lunar. XVI. 1907.
Société des Sciences.
Bulletins. XVI, 1–2; XVIII, 5–XXI, 1; also II, 7–12, III, 1–2, X, 5.
Buchan Field Club Museum, Peterhead.
Transactions. N. S. I, 1.
BUDAPEST.—*Académie Hongroise des Sciences.*
Mathematische und Naturwissenschaftliche Berichte aus Ungarn. XXIV–XXV. 1906–07.
Rapport sur les Travaux. 1909.
Kiralyi Magyar Tudomány, Egyetem Tanrede.
1903/04; 1905/06–1908/09; 1910/11.
BUENOS AIRES.—*Dirección General de Estadistica.*
Boletin Mensual. X, 108–XI, 120. 1909–10.
Museo Nacional.
Anales. Ser. III. T. XI–XIII. 1910.
Sociedad Cientifica Argentina.
Anales. LXIX, 1–LXX, 4. 1910.
BUFFALO.—*Society of Natural Sciences.*
Bulletins. X, 1. 1910.
CAEN.—*Société Linnéenne de Normandie.*
Bulletin. Sér. 6, T. II. 1908–09.
Mémoires. XXIII, 1–2. 1908–09.
CALCUTTA.—*Asiatic Society of Bengal.*
Journal and Proceedings. IV (Index); V, 1–11; VI, 1–6. 1908–10.
Memoirs. III, 1.
Historical Society.
Annual Report. 1910.
Journal. V (No. 10). 1910.
California Academy of Sciences.
Proceedings. I, pp. 7–288 (4th Ser.); III, pp. 57–72 (4th Ser.).
CAMBRAI.—*Société d'Emulation.*
Mémoires. LXIII–LXIV. 1908–09.
CAMBRIDGE (England).—*Observatory.*
Report. 1909–10.
Philosophical Society.
Transactions. XXI, 12–14; Index to XIII.

CAMERON, La.—*Gulf Biologic Station.*
Bulletin. V. 1910.
CANADA.—*Geological Survey.*
Department of Mines. Summary Report. 1909.
Maps 1006, 1008, 1077, 1082, 1091, 1093, 1101, 1110, 1115, 1137, 1143, 1170.
Department of the Interior.
Maps, Manitoba, Saskatchewan and Alberta. 1909.
Forestry Branch. Bulletin. 9, 16–20.
CANADIAN RAILWAY CLUB.
Official Proceedings. X, 1–5. 1911.
Caradoc and Severn Valley Field Club, SHREWSBURY.
Record of Bare Facts. 20, 1910.
Transactions. V, 2.
CATANIA.—*Accademia Gioenia di Scienze Naturali.*
Bolletino delle Sedute. Ser. II, 11–17. 1910–11.
Societa degli Spettroscopisti Italiana.
Memorie. XXXIX, 1–7, 9–11; XL, 1–3. 1910–11.
Cellule, La. XXVI, 1. 1910.
CHAPULTEPEC.—*Observatorio Astronomico National.*
Anuario. XXXI. 1911.
CHEMNITZ.—*Naturwissenschaftliche Gesellschaft.*
Bericht. XVII. 1909.
CHERBOURG.—*Société Nationale Académique.*
Mémoires. XVIII.
CHICAGO.—*Field Museum of Natural History.*
Publications. 142–150.
CHRISTIANIA.—*Nyt Magazin for Naturvidenskaberne.* XLIX, 1. 1911.
Videnskabs-Selskabet.
Forhandlinger. 1909.
CHUR.—*Naturforschende Gesellschaft Graubündens.*
Jahres-Bericht. LII. 1909–10.
CINCINNATI.—*Lloyd Library.*
Bulletins. Mycological Series, 3 (1902), no. 1; 13 (1909), no. 4. Pharmacy Series, 12 (1910), no. 2.
Report of Lloyd Mycological Museum. 1. 1895.
Bibliographical Contributions. 1–2. 1911.
Mycological Notes. 32–5. 1909–10. Index to II. 1905–08.
Museum Association.
Annual Report. XXIX. 1909.
Journal. XX 1, 2. 1910.
University.
Report of Chairman and President. 1909.
Observatory Publications. 17. 1905–10.
Record. VI, 5–VII, 4. 1910–11
University Studies. Ser. II. Vol. VI, 1–4. 1910.

Colorado College.
Publications. General Series. 50–52, 55. Science Series. XII, 25, 47–49. Social Science Series. II, 3.

Colorado Scientific Society.
Proceedings. IX, 315–X, 38.
Year-Books. 1882–1910.

COLORADO.—*University of.*
Studies. VII, 2–VIII, 3. 1910–11.

Connecticut Historical Society.
Annual Report. 1910.

COPENHAGEN.—*L'Académie R. des Sciences et des Lettres de Danemark.*
Bulletin (Oversigt). 1909, 6–1911, 1.
Naturhistoriske Forening.
Videnskabelige Meddelelser. 1909.

CORUÑA.—*R. Academia Gallega.*
Boletin. V, 35–VI, 46.

CRACOW.—*Académie des Sciences.*
Materyaly. 1907–09.
K. K. Sternwarte
Resultate. 1910.
Meteorologische Beobachtungen. March 1910–May 1911.

CROYDON.—*Microscopical Club.*
Reports and Abstracts of Proceedings. I–V, VI–VIII, 1871–1878.
Annual Proceedings and Transactions. 1878/81 to 1909/10; Index to 1870/83.
Natural History and Scientific Society.
Annual Proceedings and Transactions. 1909–10.

DANZIG.—*Naturforschende Gesellschaft.*
Katalog der Bibliothek. Heft 2.
Schriften. N. F. Bd. XII, 4.
Westpreussischer Botanisch-Zoologischer Verein.
Berichte XXVI–XXIX; XXXI–XXXII. 1905–10.

DAVENPORT, IA.—*Academy of Sciences.*
Proceedings. XII, pp. 223–40.

DENISON UNIVERSITY.
Bulletin of the Scientific Laboratories. XVI, pp. 1–346. 1910.

DETROIT.—*Museum of Art.*
Annual Report. 1910.
Bulletins. IV, 2–V, 2. 1910–11.

DIJON.—*Académie des Sciences, Arts et Belles-Lettres.*
Mémoires. 3e Sér. T. II–III. 1874–76. 4e Sér. T. II 1907–10.

DORPAT.—*Gelehrte Estnische Gesellschaft.*
Sitzungsberichte. 1909.

DORPAT.—*Naturforscher-Gesellschaft.*
  Archiv. Ser. II, Band VI.
  Sitzungsberichte. XVIII, 2–4. 1909.
DRESDEN.—*Naturwissenschaftliche Gesellschaft Isis.*
  Sitzungsberichte und Abhandlungen. July, 1909 to Dec., 1910.
DUBLIN.—*Royal Dublin Society.*
  Economic Proceedings. II, 1–2.
  Scientific Proceedings. N. S. VII, 24–36; Index. 1898–1909.
  Scientific Transactions. V, 2d Series, VI.
 R. Irish Academy.
  Proceedings. Series A, XXVIII, 1–XXIX, 2; Series B. XXVIII, 1–XXIX, 1; Series C, XXVII, 10, XXVIII, 1–XXIX, 4.
  Clare Island Survey. XXXI, 4–5, 22, 39.
 Trinity College.
  Hermathena. 34–36. 1908–10.
DUTCH EAST INDIES.—*K. Natuurkundige Vereeniging.*
  Natuurkundige Tijdschrift. LXIX.
East Kent Scientific and Natural History Society.
  Transactions and Reports. Ser. II. Vol. IX.
EDINBURGH.—*Botanical Society.*
  Transactions and Proceedings. XXV.
 Geological Society.
  Transactions. IX, special part and V.
 R. Observatory.
  Annals. III. 1908.
 R. Physical Society.
  Proceedings. XVIII, 2.
 Royal Society.
  Proceedings. XXX, 5, 7; XXXI, 1–3.
ELBERFELD.—*Chemisches Untersuchungsamt.*
  Bericht über die Tätigkeit. 1908.
 Naturwissenschaftlicher Verein.
  Jahres-Bericht. XII. 1909.
Elisha Mitchell Scientific Society.
  Journal. XXV, 3–XXVI, 4.
EMDEN.—*Naturforschende Gesellschaft.*
  Jahresbericht. XCIV. 1908/09.
  Kleine Schriften. 4, 6–10, 14.
ERFURT.—*K. Akademie gemeinnütziger Wissenschaften.*
  Jahrbücher. XXXV. 1909.
Essex Institute.
  Annual Report. 1910, 1911.
FLORENCE.—*Biblioteca Nazionale Centrale.*
  Bolletino. 110–124.

France.—*Ministère de l'Instruction Publique, des Beaux-Arts et des Cultes.*
Rapport sur les Observatoires Astronomiques de Province. XXIV, XXIX, XXXI, XXXVIII, XLIII, LVI, LXII, LXVII, LXX, LXXII, LXXIV, LXXVIII, LXXXI, LXXXIII, LXXXVII, XC, XCIII. 1887–1906.

Frankford, Pa.—*Historical Society.*
Papers. II, 2.

Frankfurt, a. M.—*Deutsche Malakologische Gesellschaft.*
Nachrichtsblatt. XLII, 3–XLIII, 2. 1910–11.

Senckenbergische Naturforschende Gesellschaft.
Abhandlungen. XXXI, 1–XXXIII, 3.
Bericht. I–4. 1910.

Verein für Geographie und Statistik.
Jahresbericht. LXXIII–LXXIV. 1909–10.

Frankfurt, a. O.—*Naturwissenschaftlicher Verein.*
Helios. XXVI. 1910.
Monatliche Mitteilungen. II, 7–VI. 1885–87.

Franklin Institute.
Journal. CLXIX, 3–CLXXII, 1. 1910–11.

Frauenfeld.—*Thurgauische Naturforschende Gesellschaft.*
Mitteilungen. XIX. 1910.

Freiburg, i. B.—*Naturforschende Gesellschaft.*
Bericht. XVIII, 1. 1910.

Fribourg.—*Société Fribourgeoise des Sciences.*
Bulletins. III, 1883/87; IV, 1887/90; VII, 1893/97–XII, 1903/04 XIV, 1905/06XV–II, 1908/09.

Geneva.—*L'Institut National Genevois.*
Bulletins. XXXVIII–XXXIX. 1909.
Mémoires. XIX–XX. 1901–10.

Société de Physique et d'Histoire Naturelle.
Comptes rendus des Séances. XXVII. 1910.
Mémoires. XXXVI, 2–XXXVII, 1, 1910–11.

Genoa.—*Museo Civico di Storia Naturale.*
Annali. Ser. 3. IV. 1908–10.

Germany.—*Kaiserl. Leopoldinisch-Carolinische deutsche Akademie der Naturforscher.*
Abhandlungen. Nova Acta. XC, 2–4; XCI, 3; XCII, 1 XCIII, 2.
Leopoldina. XLV–XLVI. 1909–10.

Giessen.—*Oberhessische Gesellschaft für Natur- und Heilkunde.*
Bericht. N. F. Medizinische Abteilung. V. 1909.
Naturwissenschaftliche Abteilung. III. 1908–1909.
Register zu Bänden I–XXXIV.

Glasgow.—*Natural History Society.*
Journal. II, 1–4. 1909/10.

GLASGOW.—Glasgow Naturalist. I–II. 1909–10.
R. Philosophical Society.
Proceedings. XLI. 1909–10.
GOETEBORG.—*K. Gesellschaft der Wissenschaften.*
Handlingar. 4de följ II. 12. 1909.
GOETTINGEN.—*K. Gesellschaft der Wissenschaften.*
Nachrichten. Geschäftliche Mitteilungen. 1910, 1.
Mathematisch-physikalische Klasse. 1908–10.
Philosophisch-historische Klasse. 1910, 1–2.
GRAZ.—*Naturwissenschaftlicher Verein für Steiermark.*
Mitteilungen. XXVII–XLIV. 1890–1907.
GREAT BRITAIN.—*Royal Photographic Society.*
Annual Exhibition. LV. 1910.
GRENOBLE.—*Université.*
Annales. XX, 2–3; XXI, 1–3; XXII, 1–3, et supplement; XXIII, 1.
HAARLEM.—*Musée Teyler.*
Archives. Sér. II. XII, 1. 1910.
Société Hollandaise des Sciences.
Archives néerlandaises. Sér. II, XV, 1–5. 1910–11.
Teylers Godgeleerd Genootschap.
Verhandlingen. N. S. XVII.
HAMBURG.—*Deutsche Seewarte.*
Aus dem Archiv. XXXII, 2–XXXIII, 4. 1909–10.
Ergebnisse der meteorologischen Beobachtungen. 1901–05.
Deutsches meteorologisches Jahrbuch. XXXII. 1909.
Jahresbericht. XXXIII. 1910.
Annalen der Hydrographie und maritimen Meteorologie. XXXVIII, 4–XXXIX, 6. 1910–11.
Nachtrag zum Katalog. IX. 1909–10.
Naturwissenschaftlicher Verein.
Abhandlungen. XIX. 3–5.
Verhandlungen XVII. 1909.
Harvard College.—Astronomical Observatory.
Annals. LIX, 6; LXV; LXVI; LXVIII, 1; LXXI, 1.
Annual Report. LXV. 1910.
Circulars. 153–65.
Museum of Comparative Zoology.
Annual Report. 1909/10.
Bulletins. LII, 15–17; LIII, 5; LIV, 2–5.
Memoirs. XL, 1–2; XLI, 1–2; XXVI, 7; XLV, 1.
HAVANA.—*Colegio de Belen.*
Observaciones meteorológicas y magnéticas. 1909.
HAVRE.—*Société Géologique de Normandie.*
Bulletin. XXIX. 1909.

HEIDELBERG.—*Historisch-philosophischer Verein.*
Neue Heidelberger Jahrbücher. XVI, 1–2. 1909.

HELSINGFORS.—*Societas Scientiarum Fennica.*
Acta. XXXV, 1–10; XXXVI, 1–4; XXXVII, 1–2, 4–11; XXXVIII, 1, 3; XXXIX, 4; XL, 1–4, also XIX. 1893.
Bidrag till kännedom af Finlands natur och folk. 52–53, 1893; 67 (1–3), 68 (1–2), 1910.
Öfversigt af förhandlingar. VI–VIII, 1863–66; LI, A–C, LII, A–C, 1908–10.
Meteorologisches Jahrbuch. III, 1903 & Supplement.
Observations météorologiques. 1899–1900.

HERMANNSTADT.—*Siebenbürgischer Verein für Naturwissenschaft.*
Verhandlungen und Mitteilungen. LIX. 1909.

HUDSON COUNTY, N. J.—*Historical Society.*
Publications. 1–7. 1908.

ILLINOIS.—*State Laboratory of Natural History.*
Bulletins. VIII, 4–5 and Index; IX, 1–3. 1910.

INDIA.—*I. Department of Agriculture.*
Report on Progress of Agriculture. 1909/10.
Memoirs. Botanical series. I, Index; II, 9; III, 1–6; IV, 1. Chemical series. I, 8–9.
Agricultural Research Institute, Pusa. Report. 1909/10. Bulletin 16, 1910.

Geological Survey.
Memoirs. XXXVII, 4–XXXVIII. 1910. Palæontologica Indica. Ser. XV. Vol. IV, 2–3; VI, 2; N. S. III, 1.
Records. XXXVIII, 4–XL, 3. 1910.

Meteorological Department.
Annual Summary. 1909.
Memoirs. XX, 8 and Index; XXI, 2.
Monthly Weather Review. Dec., 1910 to Feb., 1911.
Rainfall of India. XIX. 1909.
Report of Administration. 1909/10.

Board of Scientific Advice.
Annual Report. 1908/9; 1909/10.

Indian Museum. (Calcutta).—Annual Report. 1907–09.
Catalogue of the Indian Decapod Crustacea. I, 2.
Echinoderma. Part VI, Asteroidea, 2. 1910.

INDIANA.—*Academy of Science.*
Proceedings. 1909.

IOWA.—*State University.*
Bulletins. Laboratory of Natural History. VI, 1.
Contributions. Physical Laboratory. I, 4. 1911.

IRELAND.—*Pharmaceutical Society.*
Calendar. XXXV. 1911.

ITALY.—*R. Comitato Geologico.*
Bollettino. 2–3. 1910.
Jamaica Institute.—Journals. I, 1–3; II, 2, 5–6.
Jenaische Zeitschrift für Naturwissenschaft. XXXIX, 1–XL, 2. 1910–11.
John Crerar Library.
Annual Report. XVI. 1910.
Handbook. 1910.
List of Books on the History of Science. Jan., 1911.
Johns Hopkins University.—Circulars. 1910, 4–1911, 5.
KANSAS.—*University.*
Science Bulletin. V, 1–11. 1910.
KASAN.—*Observatoire Météorologique.*
Bulletins. 1904–09.
Société Physico-Mathématique.
Bulletin. Sér. II, XVI, 3. 1910.
KHARKOFF.—*Société des Sciences Physico-Chimiques.*
Travaux. XXXVI, 1908.
KIEL.—*Kommission zur wissenschaftlichen Untersuchung der deutschen Meere.*
Wissenschaftliche Meeresuntersuchungen. Abteilung Kiel. N. F. XI–XII.
K. Universität.
Verzeichnis der Vorlesungen. W. 1909/10. S. 1910.
Chronik. 1909/10.
Dissertations.
KIEV.—*Société des Naturalistes.*
Mémoires. XX, 4–XXI, 2. 1910.
KLAUSENBURG.—*Université.*
Annales. 1907/08–1908. 1909.
Kodaikanal Observatory.—Annual Report. 1909–10.
Bulletins. XIX–XXIII. 1910.
KOENIGSBERG, i. Pr.—*Physikalisch-ökonomische Gesellschaft.*
Schriften. L. 1909.
KYOTO.—*I. University. College of Science and Engineering.*
Memoirs. II, 1–14; III, 1–3. 1909–11.
LA PLATA.—*Archivos de Pedagogia y Ciencias Afines.* 16–23. 1909–11.
LA ROCHELLE.—*Académie. Section des Sciences Naturelles.*
Annales. 35. 1906/07.
Flore de France. XIV. 1910.
LAUSANNE.—*Institut Agricole.*
Observations Météorologiques. XVIII, 1904; XXII, 1908.
Société Vaudoise des Sciences Naturelles.
Bulletins. Sér. V, 167–72; also Sér. II, XI, 66, 68. 1871/73.
LEIDEN.—*Nederlandsche Dierkundige Vereeniging.*
Aanwinsten der Bibliotheek. I. 1908/09.
Tijdschrift. Ser. II. Deel XI, 3–XII, 2.

LEIDEN.—*Rijksuniversiteit. Sterrewacht.*
Verslag. 1908–10.

LEIPZIG.—*K. Sächsische Gesellschaft der Wissenschaften.*
Berichte. Mathematisch-physische Klasse. LXI, 4–5; LXII, 1–5. 1909–10.

Verein für Erdkunde.
Mitteilungen. 1908–09.

Leriche, Maurice. Les poissons oligocènes de la Belgique. Année 1910.

LEMBERG.—*Ševčenko-Gesellschaft der Wissenschaften.*
Chronik. II, 38; III, 39; IV, 40. 1909.
Sammelschrift. Mathematisch-Naturwissenschaftlich-Ärztliche Section. VII, 1; IX; XIV.

LIÈGE.—*Société R. des Sciences.*
Mémoires. VIII. 1909.

LIMBURG.—*Provinciaal Genootschap voor Geschiedkundige Wetenschappen, Taal en Kunst.*
Limburg's Jaarboek. XVI, 4; XVII. 1910–11.

LINZ.—*Museum Francisco-Carolinum.*
Jahresbericht. 69.

LISBON.—*Sociedade de Geographia.*
Boletim. Ser. XXVIII, 1–12; XXIX, 1–3. 1910–11.

LIVERPOOL.—*Geographical Society.*
Transactions and Annual Report. XVIII–XIX. 1909–10.

LONDON.—*Biological Society.*
Proceedings. XXIV. 1909/10.

R. Geographical Society.
Geographical Journal. XXXV, 3–XXXVII, 5. 1910–11.

Geological Society.
Quarterly Journal. 261–65. 1910–11.
Geological Literature added to Library. 1909.

Linnaean Society.
Journal. Botany. 272. 1909. Zoology. 201, 202, 207. 1910.
List. 1910/11.
Proceedings. 122. 1909–10.

Mathematical Society.
Proceedings. VIII, 3–7; IX, 1–7. 1910–11.

R. Microscopical Society.
Journal. 1910, 1–1911, 3.

National Physical Laboratory.
Annual Report. 1909, 1910.
Collected Researches. VI–VII. 1910–11.

Patent Office.
Catalogue of Library. I. Authors. 1899.
Library Series. 1–2, 4–18. 1905–07.
Subject Lists. N. S. AA–BE, BF–BL. 1908/09.

- LONDON.—*Royal Society.*
    - Philosophical Transactions. Ser. A. 461–76. Ser. B. 273–84. 1910–11.
    - Proceedings. Ser. A. 563–79. Ser. B. 555–68. 1910–11.
- LOUISIANA.—*State Museum.*
    - Natural History Survey. Bulletin. I. 1911.
- LUENEBURG.—*Naturwissenschaftlicher Verein.*
    - Jahreshefte. XVIII. 1908/10.
- LUND.—*K. Universitet.*
    - Acta. N. F. V, 1–2, 1909; Register. 1864–1901.
    - Biblioteks Årsberättelse. 1909.
- LUXEMBOURG.—*Institut Grand-Ducal.*
    - Section des sciences naturelles, physiques et mathématiques. Archives trimestrielles. N. S. IV, 1–V, 1. 1909–10.
- LYONS.—*Académie des Sciences.*
    - Mémoires. Sér. III, 11. 1911.
    - *Société d'Agriculture, Sciences et Industrie.*
        - Annales. 1909.
    - *Université.*
        - Annales. Science-Médecine. N. S. 1, 6, 25–29. 1899–1909.
        - Annales. Droit-Lettres. N. S. II, 4, 21, 22. 1900–1910.
        - Société des amis de l'Université. Bulletins. XXIII, 1–XXIV, 1, 1910–11.
    - *Bulletin Historique du Diocèse de Lyon.* I, 6; II, 2. 1909. 1911.
- MADRAS.—*Fisheries Bureau.*
    - Bulletins. 4–5.
- MADRID.—*R. Academia de Ciencias Exactas, Fisicas y Naturales.*
    - Memorias. XV.
    - Revista. VIII, 7–IX, 8.
    - *Comisión del Mapa Geológico.*
        - Boletin. X–XI. 1908/09.
    - *Observatorio.*
        - Anuario. 1911.
        - Resumen de las Observaciones Meteorologicas. 1902–05.
- MAGDEBURG.—*Museum für Natur- und Heimatkunde.*
    - Abhandlungen und Berichte. II, 1. 1910.
- *Maine Agricultural Experiment Station.*
    - Bulletin. 190. 1911.
- MANCHESTER, England.—*Geographical Society.*
    - Journal. XXV, 2–XXVI, 2. 1909–10.
    - *Literary and Philosophical Society.*
        - Memoirs and Proceedings. LIV, 2–LV, 1. 1909–11.
    - *Museum.*
        - Publications. 67–71. 1910.
    - *University.*
        - Publications. Historical Series. IX–XI. 1911. Medical Series. XIII. 1911.

MANNHEIM.—*Verein für Naturkunde.*
Jahresbericht. 75. 1910.

MARBURG.—*Gesellschaft zur Beförderung der gesamten Naturwissenschaften.*
Schriften. X, 2-4, 6-7, 10, 12; XII, 1-7; XIII, 1-6.
Sitzungsberichte. 1909-10.

MECKLENBURG.—*Verein der Freunde der Naturgeschichte.*
Archiv. LXIII, 2-LXIV. 1909-10.

MELBOURNE.—*National Museum.*
Memoir. 3. 1910.

MEXICO.—*Instituto Geológico.*
Boletin. 25, 27. 1910.
Parergones. III, 3-8. 1909-10.
Instituto Medico Nacional.
Anales. July, 1908 to Feb., 1909 and March to April, 1910.
Observatorio Meteorologico Magnetico Central.
Boletin. May, 1909 to Dec., 1909; Feb. to June, 1910.
Sociedad Cientifica "Antonio Alzate".
Memorias y Revista. XXVII, 4-XXVIII, 8.

MICHIGAN.—*Academy of Sciences.*
Report. XII. 1910.

MIDDELBURG.—*Zeeuwsch Genootschap der Wetenschappen.*
Archief. 1910.

MILAN.—*R. Istituto Lombardo di Scienze e Lettere.*
Rendiconti. Ser. II. XLII, 16-20, XLII, 16. 1910.
R. Osservatorio Astronomico di Brera.
Pubblicazioni. XLVII. 1910.
Societa Italiana di Scienze Naturali e del Museo Civico.
Atti. XLVIII, 4-L, 1. 1910-11.

MILWAUKEE.—*Public Museum.*
Annual Report. XXVII-XXXVIII. 1909-10.
Bulletin. I, 1.

MINNESOTA.—*Geological and Natural History Survey.*
Botanical Series. Report of Survey. V.
Botanical Studies. IV, 1, VIII; Ser. II, 1-6; Ser. III, 1-3.
Plant Studies. I-IV.
Bulletins. 1, 2, 5, 8, 10.
Zoological Series. II-IV.

MISSOURI.—*Botanical Garden.*
Annual Report. XXI. 1910.

MODENA.—*R. Accademia di Scienze, Lettere ed Arti.*
Memorie. Ser. II, T. XII, 1, 1896; Ser. III, T. VIII. 1910.
Societa dei Naturalisti e Matematici.
Annuario. II-VI, VII, 2-4, XII, 3-4, Ser. II, T. XIV.
Atti. Rendiconti. Ser. III, T. VII, 2; Ser. IV, T. III, 1-2, VI, XI and XII.

MONTANA.—*Agricultural Experiment Station* (Bozeman).
Annual Report. XVI. 1909.
Bulletins. 77–80, 82–83, 85. 1909–11.
College of Agriculture and Mechanical Arts.
Experiment Station Circular. 4. 1910.
University of Montana.
Bulletin. 68. 1910.
MONTEVIDEO.—*Museo Nacional.*
Anales. IV, 1–2. 1910; also Ser. II, T. 1, 3.
Observatorio Nacional Fisico-Climatologico.
Boletin. 79–84. 1909.
MONTPELLIER.—*Académie des Sciences et Lettres.*
Bulletin Mensual. 1910, 4–7; 1911, 1–4.
Mémoires de la Section de Médecine. Sér. II, T. III.
Mémoires de la Section des Sciences. Sér. II, T. IV, 1–2, V, 2.
MOSCOW.—*Société I. des Naturalistes.*
Bulletins. 1908, 3–1909. N. S. XXIII.
MÜNSTER i. W.—*Westfälischer Provinzial-Verein für Wissenschaft und Kunst.*
Jahresbericht. XXXVIII. 1909–10.
MUNICH.—*K. Bayerische Akademie der Wissenschaften.*
Abhandlungen. Mathematisch-physikalische Klasse. XXIV, 3; XXV, 1–4. 1909–10. Supplement-Bände. I, 7–10; II, 2; III, 1; IV, 1–2.
Sitzungsberichte. Mathematisch-physikalische Klasse. 1909. Abhandlung. 1909, 15–1910, 9.
Philosophisch-philologisch und historische Klasse. 1909. Abhandlung. 1909. 7–9. 1910. 1–6.
NANCY.—*Académie de Stanislas.*
Mémoires. Sér. VI. T. VI–VII. 1908–10.
NAPLES.—*R. Instituto d'Incoraggiamento.*
Atti. Ser. VI. T. LX–LXI. 1908–09.
R. Accademia delle Scienze Fisiche e Matematiche.
Atti. Ser. II, T. XIV.
Rendiconti. Ser. III. T. XV, 8–XVI, 12. 1910; also supplement 189.
R. Accademia di Scienze Morali e Politiche.
Atti. XXXIX–XL. 1910.
Rendiconti. XLVIII–XLIX. 1909–10.
R. Università.
Museo Zoologico. Annuario. N. S. III, 1–12. 1910.
NATAL.—*Government Museum.*
Annals. II, 2. 1911.
Naturae Novitates. 1910, 3 to 1911, 7.
NEUCHATEL.—*Académie Faculté des Lettres.*
Recueil des Travaux. V. 1910.

Neuchatel.—*Société Neuchateloise des Sciences Naturelles.*
Bulletins. XXXV–XXXVII. 1907–10.
New South Wales.—*Linnean Society.*
Proceedings. No. 135–8. 1909–10.
New York.—*Academy of Sciences.*
Annals. XIX, 2–XX, 2; XXI, pp. 1–86. 1910–11.
Botanical Garden.
Bulletins. VI, 21–22; VII, 25. 1910–11.
Public Library.
Bulletins. XIV, 4–XV, 6. 1910–11.
State Museum.
Memoirs. XII, 1; XIII. 1909–10.
New Zealand.—*Institute.*
Transactions and Proceedings. XLII. N. S. 1910.
Newcastle-upon-Tyne.—*North of England Institute of Mining and Mechanical Engineers.*
Transactions. LX, 1–9; LXI, 1–4. 1910–11.
Annual Report. 1909/10.
Norfolk and Norwich Naturalists' Society.
Transactions. IX, 1. 1910.
North Carolina.—*University.*
Philological Club. Studies in Philology. V–VII. 1910–11.
North Dakota.—*University.*
Quarterly Journal. I, 1–4. 1910/11.
School of Mines Bulletin. N. S. I, 2, 6. 1909.
North Staffordshire Field Club.
Annual Report and Transactions. XLIV–XLV. 1909–10. 1910–11.
Northamptonshire Natural History Society and Field Club.
Journal. XV, 117–24. 1909–10.
Northumberland, Durham and Newcastle-upon-Tyne, Natural History Society.
Transactions. I, 1–3; II. N. S. III, 1–2. 1911.
Nova Scotia.—*Department of Mines.*
Report. 1910.
Nova Scotian Institute of Science.
Proceedings and Transactions. XI, 3–4; XII, 2. 1904–8.
Nuremberg.—*Naturhistorische Gesellschaft.*
Abhandlungen. VIII; XV, 1–3; XVIII.
Odessa.—*Observatoire Météorologique et Magnétique.*
Annuaire. 1908–09.
Ohio.—*State Academy of Science.*
Proceedings. V, 6. 1910.
Geological Survey.
Bulletins. 10–12. 1909–10.
Oklahoma.—*Geological Survey.*
Bulletins. 2, 5, 6. 1911.

OKLAHOMA.—*State University.*
Research Bulletins. 3–4. 1910.
OPORTO.—*Academia Polytechnica.*
Annaes Scientificas. III, 3–V, 4. 1910–11.
OXFORD.—*Radcliffe Library.*
Catalogue of books added during 1910.
University Observatory.
Astrographic Catalogue. V–VI. 1910.
Paedologisches Jaarbock. I, 1900; VI–VII. 1906–09.
PALERMO.—*Società di Scienze Naturali ed Economiche.*
Giornale di Scienze Naturali ed Economiche. XXVIII. 1911.
PARIS.—*Ecole Polytechnique.*
Journal. 2e Sér. XIII–XIV. 1910–11.
Ecole Normale Supérieure.
Annales. XLV, 1–XLVIII, 6. 1908–11.
Muséum d'Histoire Naturelle.
Bulletins. 1909, 8; 1910, 1–5.
Laboratoire de Phanérogamie. Notulae Systematicae, par H. Lecomte. T. I–II, 2. 1909–11.
Observatoire.
Rapport Annuel. 1909–10.
Société Zoologique de France.
Bulletins. XVII, 1, 8; XXXIV.
Mémoires. XXII. 1909.
PASADENA.—*Throop Institute.*
Bulletins. 46–50. 1910–11.
Pathologica: Revista Quindicinale. II. 36–44. 1910.
PERU.—*Ministerio de Fomento.*
Cuerpo de Ingenieros de Minas. Boletin. 75–76. 1910.
PHILADELPHIA.—*Academy of Natural Sciences.*
Journal. XIV, 2.
Geographical Society.
Bulletins. VIII, 2–IX, 2. 1910–11.
Wagner Free Institute.
Transactions. VII. 1910.
Photographic Journal, London. L, 2–LI, 6 and supplement to 5. 1910–11.
PISA.—*Società Toscana di Scienze Naturali.*
Atti. Memorie. XXV. 1910.
Processi Verbali. XIX, 2–5; XX, 1. 1910–11.
PITTSBURGH.—*Carnegie Library.*
Annual Reports. V–VIII, XIII–XIV. 1901–4, 1909–10.
Carnegie Museum.
Memoirs. IV, 2, 5–6.
Publications. 60, 61, 63, 66.
POTSDAM.—*Astrophysikalisches Observatorium.*
Publikationen. XX–XXII, 1. 1910–11.

POTSDAM.—Photographische Himmelskarte. V, 1910.

PRAG.—*K. K. Böhmische Gesellschaft der Wissenschaften.*
Jahresbericht. 1909, 1910.
Sitzungsberichte. 1909, 1910.
České Společnosti Entomologické. Časopis. VII, 1–VIII, 1. 1910–11.
Deutscher Naturwissenschaftlich-medizinischer Verein für Böhmen.
Lotos. LVII–LVIII. 1909–10.
K. K. Sternwarte.
Magnetische und meteorologische Beobachtungen. 1909.

PROVIDENCE.—*Roger Williams Park Museum.*
Bulletins. 7–8.
Monographs. 14, 15, 17.

QUEBEC.—*Literary and Historical Society.*
Transactions. V, 1; 1900–1902. No. 21.
Province.
Guides. 1909–10.
Société de Géographie.
Bulletins. IV, 1–V, 3. 1910–11.

REGENSBURG.—*Historischer Verein von Oberpfalz und Regensburg.*
Bericht. VII. 1907–09.
Verhandlungen. LXI. 1909.
Zoologisch-Mineralogischer Verein.
Abhandlungen. Hefte 1, 3, 5, 7–9. 1819–64.

Répertoire d'Art et d'Archéologie. Année I, 1–4. 1910.

RIGA.—*Naturforscher-Verein.*
Arbeiten. N. F. XII. 1910.
Korrespondenzblatt. LIII. 1910.

RIO DE JANEIRO.—*Instituto Oswaldo Cruz.*
Memoria. II, 1–2, 1910.

Rockefeller Institute of Medical Research.
Studies. X–XII.

Roentgen Society. Journal. VI, 23–VII, 27. 1910–11.

ROME.—*R. Accademia dei Lincei.*
Atti. Serie V. Rendiconti. Classe di Scienze fisiche, matematiche e naturali. XIX, 6–XX, 10. 1910–11.
Rendiconto dell'adunanza solenne. 1910, II.
Accademia Pontifica Romana dei Nuovi Lincei.
Atti. LII, 1–2; LXIII, 1–7. 1909/10.

ST. LOUIS.—*Academy of Sciences.*
Transactions. XVIII, 6; XIX, 2–11; XX, 1–3.

ST. PETERSBOURG.—*Académie I. des Sciences.*
Bulletins. Classe Phys.-Math. Sér. V, 1898, 5; Sér. VI, 1910, 6–1911, 11.
Mémoires. Classe Phys.-Math. Sér. VIII, V, 3, T. XVIII, 9, 14, 15; XXI, 6; XXIV. 1, 2, 4–10; XXV, 1–8.

St. Petersbourg.—Mémoires. Classe Hist.-Phil. Sér. VIII, T. III, 1; VII, 1–2; VIII, 13–14.

I. Botanic Garden.
Acta. XXVI, 2; XXVII, 3; XXVIII, 3.

Comité Géologique.
Bulletins. XXVIII–XXIX, 4. 1908–10.
Mémoires. N. S. 40, 51–2, 56–7, 59. 1908–10.

I. Russian Geographical Society.
Bulletins. XLV, 1–9; XLVI, 1–5. 1909–10.
Report. 1909.

Santiago de Chile.—*Deutscher Naturwissenschaftlicher Verein.*
Verhandlungen. V, 1–2; VI, 1.

Sociedad Cientifica de Chile.
Actes. XIX. 1909.

São Paulo.—*Sociedad Scientifica.*
Revista. Jan., 1909 to Aug., 1910.

Schweizerische Naturforschende Gesellschaft.
Verhandlungen. XCII–XCIII. 1909–10.

Sharp, D.—*Fauna Hawaiiensis.* II, part. III; III, part VI.

Siena.—*R. Accademia dei Fisiocratici.*
Atti. Ser. IV, II, 1–6.

Smithsonian Institution.
National Museum. Bulletins. 39, 71–4.
Contributions from National Herbarium. XIII, 3–9; XIV, 1–2; XV.
Proceedings. XXXVII–XXXVIII. 1911.
Report. 1910.
Bureau of American Ethnology. Bulletins. 37, 43, 45, 49–50.

Società Entomologica Italiana.
Bulletins. XLI, 1–4. 1909.

South Africa.—*Royal Society.*
Transactions. II, 1–2, 1910–11, and Index.

South-Eastern Union of Scientific Societies (Woking).
South-Eastern Naturalist. 1910.

South London Entomological and Natural History Society.
Proceedings. 1909–10; 1910–11.

Staten Island Association of Arts and Sciences.
Proceedings. III, 1–2.

Staten Island, N. Y.—*Natural Science Association.*
Proceedings. II, 3–4.

Stockholm.—*K. Svenska Vetenskaps-Academi.*
Arkiv för Botanik. IX, 2–X, 1.
Arkiv för Kemi, Mineralogi och Geologi. III, 4–6; IV, 1.

Stockholm.—Arkiv för Matematik, Astronomi och Fysik. VI, 1–3.
Arkiv för Zoologi. VI, 1–4; VII, 1.
Årsbok. 1910.
Handlingar. XLV, 3–XLVI, 3.
Meteorologiska Iakttagelser. L, Append., LI.
Les Prix Nobel; 907–8

K. Bibliothek.
Accessions-Katalog. 23. 1908.

Entomologisk Förening.
Entomologisk Tidskrift. XXXI, 1–4. 1910.

Forstliche Versuchsanstalt.
Meddelanden. 7. 1910.

Stuttgart.—*Verein für Vaterländische Naturkunde in Württemberg.*
Jahreshefte. 1910, 1.

Sydney.—*Australian Museum.*
Memoir. IV, 12.
Report. LVI. 1910.
Special Catalogue. No. I, Vol. III, pt. 1.

Tasmania.—*Royal Society.*
Papers and Proceedings. 1909.

Texas.—*University.*
Bulletins. 129, 134–8, 140, 142–3, 145–6, 152–3, 166–7, 170, 178.

Tiflis.—*Physikalisches Observatorium.*
Beobachtungen. 1899–1904.
Seismische Monatsberichte. 1909. 1–7.

Tokyo.—*Deutsche Gesellschaft für Natur- und Völkerkunde Ostasiens.*
Mitteilungen. XII, 2. 1910; also XI, 2. 1908.

University.
Journal of the College of Science. XXVII, 7–20, XXVIII, 1–6.
Calendar. 1909–10.

Toronto.—*Canadian Institute.*
Proceedings. II, no. 12, part 6.
Transactions. VIII, no. 19, part 4.

University.
Publications. Biological Series. 8.
Geological Series. 6–7.

Toulouse.—*Académie des Sciences.*
Mémoires. Sér. X. T. IX.

Université.
Faculté des Sciences. Annales. Sér. II, T. X, 3–4; Sér. III, T. I, 1, 3.
Bibliothèque Méridionale. Sér. I, T. I, 4 XIII, XIV; Sér. II, T. III, VIII–X, XII–XIII.

TOULOUSE.—Annuaire. 1899–1900.
  Bulletins. B, 1–2.
 Observatoire Astronomique, Magnétique et Météorologique.
  Annales. VI. 1907.
 Société d'Histoire Naturelle.
  Bulletins Trimestr. XLII, 3–4; XLIII, 2–3.
TRIEST.—*Osservatorio Maritimo.*
  Rapporto Annuale. 1906.
TROMSOE.—*Museum.*
  Aarsberetning. 1908–09.
  Aarshefter. 30–32. 1907–09.
  Geologiske Undersøgelser. IV, Pettersen.
TRONDHEIM.—*K. Norske Videnskabers Selskab.*
  Skrifter. 1872, I; 1874, I–II; 1909.
Tufts College.
  Studies. Scientific Series. III, 1.
TURIN.—*Musei di Zoologia ed Anatomia Comparata.*
  Bolletini. XXVI, 616–33 and index.
UNITED STATES.—*Department of Agriculture.*
  Crop Reporter. 1910, 5–10.
  Library. Bulletins. 46–53.
   Monthly Bulletins. I, 3–II, 4.
  Division of Publication. No. 713.
  Weather Bureau. Mt. Weather Observatory. Bulletins. II, 4–III, 5 and Index. 1910.
 Department of the Interior.
  Geological Survey. Annual Report. XXXI. 1910.
   Bulletins. 323–4, 328, 337, 343, 361, 364–8, 370, 381–2, 385–6, 398, 406–7, 415, 417, 419–20, 422, 425–30, 432–47, 453, 465.
   Geologic Atlas. Folios 167–176.
   Professional Papers. 68.
   Water Supply and Irrigation Papers. 237, 239, 241, 243–55, 260, 262, 264.
 Library of Congress.
  Outline Scheme of Classes (preliminary), Dec., 1909.
  Publications issued since 1897, Jan., 1911.
  Report of Librarian. 1910.
 Naval Observatory.
  Publications. 2d Ser., VI–VII. 1911.
  Superintendent. Synopsis of Report. 1910.
UPSALA.—*K. Universitet.*
  Årsskrift. 1909.
  Geologiska Institution. Bulletins. IX, 17–20, 1908–11; and Index, 1–X.

UTRECHT.—*K. Nederlandsch Meterologisch Instituut.*
Annuaire. 1909, A—B.
Mededeelingen en Verhandlingen. 102 (10—11), 1910/11.
Provinciaal Utrechtsch Genootschap van Kunsten en Wetenschappen.
Aateekeningen van het Verhandelde in de Sectie-Vergaderingen 1910.
Verslag van het Verhandelde. 1910.

Vanderbilt Southern History Society.
Publications. 1.

Vanderbilt University.
Oriental Series. VI—VII. 1908—10.

VIENNA.—*K. K. Akademie der Wissenschaften.*
Erdbeben-Kommission. Bericht und Chronik. V. 1910.
Mitteilungen. XXXVII. 1909.
Sitzungsberichte. Mathemat.-naturwiss. Klasse. CXVIII, 8—CXIX, Abt. III, 5.
K. K. Central-Anstalt für Meterologie und Geodynamik.
Jahrbücher. N. F. XLIII—XLV.
K. K. Geologische Reichsanstalt.
Abhandlungen. XVI, 3; XX, 3; XXII, 1.
Jahrbücher. LX, 1—3. 1910.
Verhandlungen. 1896 (13—15); 1903 (1); 1909 (15—18); 1910 (1—18).
K. K. Naturhistorisches Hofmuseum.
Annalen. XXIII, 4—XXIV, 2. 1909—10.
Verein zur Verbreitung Naturwissenschaftlicher Kenntnisse in Wien.
Schriften. L.
K. K. Zoologisch-Botanische Gesellschaft.
Verhandlungen. LIX, LX. 1909—10.

Virginia, University of.
Philosophical Society. Publications. Bulletins. I, 1—4. 1910.
Humanistic Series. I, 1. 1911.
Scientific Series. I, 1—5. 1910—11.

WARREN, PA.—*Academy of Sciences.*
Transactions. I, 2. 1908/09.

Western Pennsylvania Engineers' Society.
Proceedings. XXVI, 4—XXVII, 5. 1910—11.

WIESBADEN.—*Nassauischer Verein für Naturkunde.*
Jahrbuch. 63. 1910.

Wilson Ornithological Club, Oberlin, O.
Wilson Bulletins. 70—4, 1910—11; also XXIII, 2; Indices to XXI—XXII.

Wisconsin Geological and Natural History Society.
Bulletins. XIX—XXII.
Road Pamphlet. 5.

Wisconsin Natural History Society.
Bulletins. N. S. VII, 3–4, VIII, 4–IX, 2. 1909–11.
Occasional Papers. I, 1, 3, II, 1–3, III.
WÜRZBURG.—*Physikalisch-medizinische Gesellschaft.*
Sitzungs-Berichte. 1909, 1–5; 1910, 1–5.
Wyoming Historical and Geological Society.
Proceedings and Collections. XI. 1910.
Yale University.
Astronomical Observatory. Transactions. II, 2. 1910.
ZÜRICH.—*Naturforschende Gesellschaft.*
Vierteljahrsschrift. LIV, 3–LV, 2. 1909–10.

R. WAGNER SOHN WEIMAR

This preservation copy
was printed and bound at
Bridgeport National Bindery, Inc.,
in compliance with U.S. copyright law.
The paper used meets the requirements
of ANSI/NISO Z39.48-1992
(Permanence of Paper).

P B

∞

1997

7/26/9

DATE DUE

GAYLORD

PRINTED IN U S A

WELLESLEY COLLEGE LIBRARY
3 5002 03238 0839

Science Q 11 .C9 16:2 1911a

Emerton, J. H. 1847-1930.

New spiders from New England